# AMERICAN FORESTS

APRIL 1937 35 CENTS A COPY

## LOGGING THE NEW WAY

# Her FIRST Telephone Call

A BRAND-NEW CUSTOMER used the telephone this morning. Betty Sue called up that nice little girl around the corner.

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EDITOR
Ovid Butler

ASSISTANT EDITORS
Lilian Cromelin
Erle Kauffman

## NEXT MONTH

In this issue R. Kent Beattie tells of the havoc being wrought by the Dutch elm disease in Central Europe. In May the first truly comprehensive story of America's fight to save its elms will be told by G. H. Collingwood, forester for The American Forestry Association. Of what value is the elm to America? What is being done to eradicate the deadly disease? Can the elms be saved? These and other vital questions will be answered.

"Ghost Towns Still Walk" is the title of Stewart Holbrook's latest contribution to AMERICAN FORESTS — a dramatic account of logging and lumbering conditions in the Pacific Northwest. A story that shouldn't be missed. Nor should H. D. Tiemann's article, "How Water Reaches the Top of Trees."

The pictorial feature of the month will bring the beauty of the flowering tree in spring — intimate camera studies of the early bloomers. Henry Clepper has written the story. There will also be Alfred M. Bailey and others.

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The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. All manuscripts should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles . . . Notice of change of address for AMERICAN FORESTS should be received by the tenth of the month preceding issue.

Member A. B. C.

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# GARDENS of TOMORROW

## ORCHARDS OF TOMORROW

New and worth-while introductions have been made and are not nearly well enough known. They will be in the orchards of the future!

### HARDY NUT TREES

To fruit in the vicinity of New York or similar climates. Grafted varieties.

### WALNUT

**Stabler Black**—Delightful flavor of the native, but the meat falls out of the shell in two halves!

**Wiltz-Mayette English**—You can grow as good an English Walnut as you can buy.

| | Each | Doz. |
|---|---|---|
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| 4-5 ft. | 2.00 | 20.00 |
| 7-8 ft. | 3.50 | |

### HICKORIES

**Burlington**—a hybrid with native hickory and Pecan blood.

**McCallister**—hybrid Pecan with thin-shelled nuts two inches long. Rare flavor.

**Pecan**—a true pecan hardy in the north.

Order in pairs for fertilizing.

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| 5-6 ft. | 3.25 | 32.50 |

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| Prices: 2-3 ft. | $1.00 | $10.00 |
| 4-5 ft. | 1.75 | |

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15-18 inch.....$1.75 $17.50
(Bear 1938—now 3 years old.)

**THORNLESS YOUNGBERRY**—A hybrid with raspberry, dewberry and blackberry blood. Rated better than all. Strong smooth canes and juicy fruit 2 inches long! Plant Pat. No. 4.

6 plants (postpaid) **$1.00.**

Also: Dwarf and Standard Fruits. Espalier grown fruit trees.

**The old idea that shrubs and trees make a mere leafy background for the garden belongs to the expansive era of two-acre front yards. Modern space limits demand that each item in the garden produce its quota of beauty. A perfect shrub would be evergreen—in flower all summer—in berry all winter. How close can modern gardeners come to this ideal? We have noted a few of the best below.**

**ABELIA**—From many points of view, as nearly perfect as they come. Evergreen, or nearly so, and in full bloom from June to October. About 5 feet, but severe winters lower the bush, though not the bloom. Heavy cut-back clumps; 2 for $2.00.

**DAPHNE CNEORUM**—A foot-high mat of evergreen. Flooded with pink in early May, occasionally through summer and a flood again in September. 2-inch pots (small); 25 for $6.25. 9 to 12 inch (B & B); 5 for $5.50.

**MAGNOLIA GLAUCA**—Another almost evergreen, thoroughly hardy. A show of fragrant white in June and scattering all summer after. A 16-foot tree. 15-inch (light); 10 for $3.50. 3 to 4 foot (B & B); 2 for $3.00.

**FRANKLINIA**—Starts in August with large fragrant white cups that last into frost. Not evergreen, but blooms often and early in life. Tree to 35 feet. 10-inch (light); 5 for $4.50. 4 to 5 foot (B & B); 1 for $4.00.

**MOUNTAIN LAUREL**—The best evergreen leaf on an 8-foot mound. Pink or white buds in May coming to full beauty in June. 12 to 15 inch (light); 10 for $4.00. 2 foot (B & B); 2 for $4.00.

**BERBERIS VERRUCULOSA**—Evergreen clump, low, turning rich color in fall. Little golden roses nod on it all summer. 10 to 12 inch (B & B); 2 for $3.00.

**EVERGREEN HEDGES**—Of course, since they have year-round beauty.

**Japanese Yew**—Dark, dense, tree form. Grow in any situation, even in shade. 12 to 15 inch (packed); 25 for $8.75.

**Hemlock**—Quicker and taller. Also thrives in sun or shade. 12 to 15 inch (packed); 25 for $7.50.

**KELSEY BERRYBUSH YEW**—A dark green evergreen, rather dwarf, bushy. Included because it is covered with red berries in autumn. 2¼-inch pots (small); 10 for $3.50. 18 to 24 inch (B & B); 1 for $3.50.

**FIRETHORN**—(Laland's)—Almost evergreen, a show of white in May and brilliant berries from August to frost. Sturdy upright shrub. 2 to 3 feet (B & B); 2 for $3.00.

**FLOWERING DOGWOOD**—Included because in its short May period it is a sensational show. Also red winter berries. **White**—3 to 4 feet (packed) 2 for $3.00. **Pink**—1 year grafts (packed); 10 for $5.50. 3 to 4 feet (B & B); 2 for $5.50.

**ORIENTAL MAGNOLIAS**—Again, not long in bloom but shockingly attractive when they are. One can arrange for a sequence with several kinds: Stellata—white—April 10. Soulangeana—pink—April 20. Lennei—red and white—May 1. Nigra—purple—May 15. One each of all four 21 to 24 inch B & B, packed $10.00.

---

**OUR 1937 SHORT GUIDE** will help you select the best types of trees and shrubs. All the above and hundreds more, even the very rarest. Helpful photographs, some in color. And all sizes from seedlings to specimens. Please mention American Forests. MANY ATTRACTIVE PRICES not only on common every-day shrubs and trees, but some rarities are beginning to be low priced as well!

## FORESTS OF TOMORROW

| | | (100) | (1000) |
|---|---|---|---|
| **BIRCH (Betula)** | | | |
| White | 12-15 in. S.... | $ 10.00 | $ 75. |
| Canoe | 12-18 in. S.... | 5.50 | 45. |
| **DOGWOOD (Cornus)** | | | |
| White | 12-18 in. S.... | 7.50 | 65. |
| **ELM (Ulmus)** | | | |
| Pumila | 12-18 in. S.... | 2.50 | 20. |
| **FIR (Abies)** | | | |
| Concolor | 10-15 in. XX. | 25.00 | 175. |
| | 15-18 in. XX. | 35.00 | 220. |
| Douglas | 6 to 8 in. X.. | 6.00 | 50. |
| | 15-18 in. XX.. | 40.00 | 300. |
| **HEMLOCK (Tsuga)** | | | |
| American | 5-10 in. X | 12.00 | 100. |
| | 18-24 in. XX | 55.00 | 400. |
| **HICKORY (Hicoria)** | | | |
| Shellbark | 12-18 in. S.. | 9.50 | 75. |
| Shagbark | 12-18 in. S.. | 9.50 | 75. |
| **LOCUST (Robinia)** | | | |
| Black | 12-18 in. S.... | 3.00 | 15. |
| **MAPLE (Acer)** | | | |
| Red | 12-18 in. S.... | 5.00 | 30. |
| Sugar | 12-18 in. S.... | 5.00 | 35. |
| **OAK (Quercus)** | | | |
| Pin | 6-12 in. S.... | 6.00 | 50. |
| Red | 12-18 in. S.... | 8.00 | 75. |
| White | 12-18 in. S.... | 8.50 | 50. |
| **PINE (Pinus)** | | | |
| Mugho | 9-12 in. X.... | 10.00 | 85. |
| Red | 6 to 9 in. X.... | 7.00 | 55. |
| **SPRUCE (Picea)** | | | |
| Colorado | 5- 9 in. X.. | 9.00 | 70. |
| | 7-14 in. X.. | 12.00 | 80. |
| | 12-18 in. XX. | 25.00 | 200. |
| Norway | 12-18 in. X.. | 12.00 | 60. |
| White | 4- 8 in. X.. | 8.00 | 65. |
| | 12-18 in. X.. | 12.00 | 70. |
| **TULIP (Liriodendron)** | | | |
| Poplar | 12-18 in. S.... | 3.50 | 30. |
| **WALNUT (Juglans)** | | | |
| Black | 12-18 in. S..... | 4.00 | 30. |
| **YEW (Taxus)** | | | |
| Japanese upright | | | |
| | 8-10 in. XX ..... | 22.00 | 175. |
| | 15-18 in. XXX..... | 45.00 | 400. |

S—Seedlings not transplanted.
X—Each transplanting.

50 (one kind) @ 100 rate, 250 @ 1,000 rate. Packing included.

OUR 60th YEAR

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ESTAB. 1878

WEATHER, WIND AID FOREST FIRE FIGHT
Gales Subside, Fog Settles Over Oreg
20,000 IN HOP
FIRES RN WOODS
Wisconsi
Killed
DIE AS FOREST FIRES BURN TOWN
Thousands Battle Blaze Over Big Area Around Border of Oregon, California.
3 TOWNS IN WAY OF FOREST FIRE
50,000 Battle Flames Raging in North Woods; Isle Royale in F

# Stop FIRE WASTE!

## with Famous INDIAN FIRE PUMPS

### FOREST, GRASS FIRES QUICKLY AND THOROUGHLY EXTINGUISHED WITH THIS ONE MAN FIRE DEPARTMENT!

THAT'S what the INDIAN is—a compact, well built, efficient fire fighting unit for quickly extinguishing all types of fires. Above photograph shows men with INDIANS hastening to fight a large eastern forest fire. Note how curved tanks, strapped comfortably on their backs, do not impede running and leave arms and hands free.

Strong metal tank needs no propping to fill—it stands alone strong and rigid. Brass pump, with no leather parts to wear out, throws powerful 50 ft. stream. Ventilation feature prevents dampness from water tank reaching carrier's back. Forest rangers, fire departments and private citizens in cottages or rural resorts have been quick to realize the advantages of the INDIAN and equip with these sturdy fire pumps. Write today for full particulars and catalog in full color.

### CCC Use INDIANS

Photo at left shows CCC boys unloading INDIANS from truck preparatory to fighting large forest fire near camp. INDIANS are widely used in CCC camps for all manner of fire protection. Tanks may be carried filled on trucks without danger of spilling.

**USES ONLY CLEAR WATER**
**No Chemicals**

**100% PROTECTION AGAINST ANY FIRE**

The Curved 5 Gal. Metal Tank Fits Back Comfortably. Will Not Rot or Puncture.

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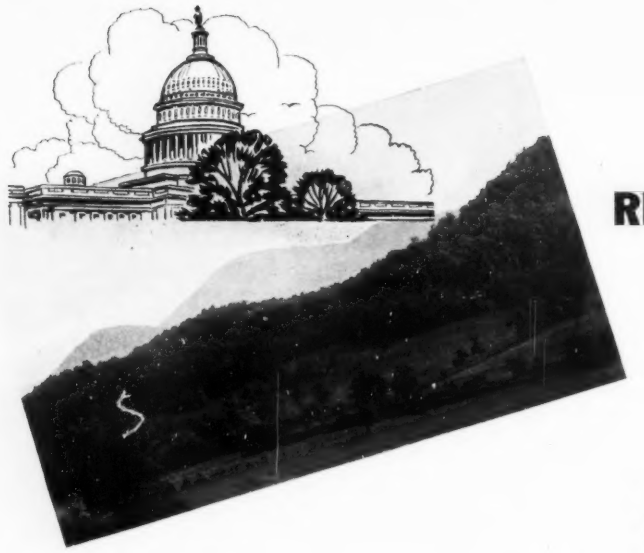

# REORGANIZATION?

■ In the field of federal conservation the uppermost question today is the proposed establishment of a Department of Conservation by the process of changing the name of the old Interior Department and giving it jurisdiction over those natural resources embraced in the public lands and reservations.

This proposal implies a radical shifting of bureaus in the government's conservation field and a general division of the work between the Department of Agriculture and what would be the Department of Conservation. The former department would retain authority for conservation relating to private lands, while the latter would be held responsible for conservation relating to public lands. In brief, the underlying principle of fixing administrative responsibility would be ownership of land.

With this principle, The American Forestry Association disagrees. Its position is that any organization or consolidation of the activities of the Federal Government relating to the administration of the public lands and reservations should be based on the principle of bringing under one departmental direction the agencies which are concerned with the production and conservation of (1) crops and plants serviceable for food or environment for man and animals, and (2) plants and forests serviceable for soil and water protection, fibres, woods, and other plant products.

The problems of production and conservation of plant life and the problems of protection and conservation of soils and waters relating to agriculture, grazing, and forestry, should be handled through a common administrative agency. Under the same direction should be included the conservation of domestic stock and wildlife whose management depends on plant foods and environment. These activities should be centered in the Department of Agriculture.

**Note—In this space is presented each month the Association's policy with respect to timely phases of conservation.**


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# THE EDITOR'S LOG

MARCH 31 marks the fourth anniversary of the Civilian Conservation Corps. The event recalls a bit of unwritten history that predated the birth of the CCC by nine months. It happened during early July, 1932.

Roosevelt had just flown to the Democratic Convention in Chicago and made his acceptance speech in which he visioned putting a million men to work in the forests of America. Secretary of Agriculture Hyde had countered with his press release ridiculing the idea and declaring there were not enough trees available for planting to keep a million men busy three hours. In the shadow of the National Capitol a bonus army of 20,000 encamped veterans held Congress and the Administration in a state of jitters. Congress had appropriated money to send the men back home. "We won't go until we have work to go to," they replied.

On July 13, I was having lunch with three friends at the Cosmos Club in Washington. Our talk dwelt upon Roosevelt's dream of putting a million men to work in the forests. How could it be done? The State of California, it seemed to us, had given a practical answer in its experience the winter before with forest work camps in the Sierra Mountains to relieve the California cities from the winter influx of unemployed. The camps had proved a success.

Our discussion then turned to the Bonus Army—uppermost topic in Washington. The situation was rapidly approaching a crisis. How could the government meet it peacefully? Arthur Ringland, I think it was, remarked—"If it's work back home the men are holding out for, why can't the government take a leaf from California and establish work camps in the National Forests throughout the country?"

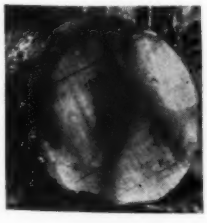
When I returned to my office, the worth of the idea pursued me. I called Ringland by telephone and suggested that we take a taxi and lay the plan before General Pelham D. Glassford, who represented the government in dealing with the Bonus Army. General Glassford received us at once and listened attentively as we unfolded the plan. As we finished, he pounded the desk with his fist and exclaimed, "I have had a hundred plans given me for meeting this situation but this is the best. The men will go home if work is provided them. This will do it." He asked us to represent him in getting immediate action through the Secretary of Agriculture.

Ten minutes later we were at the Forest Service and in conference with the Acting Forester and his staff. The plan was thoroughly checked, maps brought out and the number of men who could be usefully employed in different National Forests throughout the states was estimated. The total approximated 130,000. Funds and organization for quick establishment of camps were available. Only one thing remained—necessary approval by the Secretary of Agriculture.

Acting Forester Sherman called Secretary Hyde's office and made an appointment to see him at 4:30 the same afternoon. That evening I called Mr. Sherman by telephone and asked him if the Secretary had approved. "No," he replied, "the Secretary said it was too large a proposition for quick decision and that he would have to think it over."

So far as I know, Secretary Hyde is still thinking it over. Having told the nation that the forest work plan was a pipe dream, he must have believed it—politically, at least.

A week or ten days later the army drove the bonus men and their families from the banks of the Anacostia River. A year later, CCC camps had been established throughout the country and they absorbed a second bonus army almost as fast as the men reached Washington.



Oval Forster

# PAUL BUNYAN READS TH

TWO decades ago anyone who came within spitting distance of a logging camp knew all about Paul Bunyan, the mythical hero of all lumberjacks. Paul invented logging, and designed and made the tools for it. A giant, he shaved with a big handax, combed his hair with a crosscut saw, and used Hudson Bay blankets

"What's going on down there?" roared Paul in 1933 when he discovered men building camps everywhere throughout the land

# THE RECORD OF THE CCC

By FRED J. MURRAY

for pocket handkerchiefs. Praise of Paul's big deeds was sung by lumberjacks from Maine to California. They liked to tell how he hitched Babe, his Big Blue Ox, to one end of an old logging road that was full of curves and straightened it to shorten his log haul, and had enough road left over to supply the Union Pacific with a right-of-way across Nebraska; how he dug Puget Sound one Sunday when he wasn't busy, piling the dirt up to make Mt. Rainier and the San Juan Islands; how he logged off the Great Plains from one camp in North Dakota.

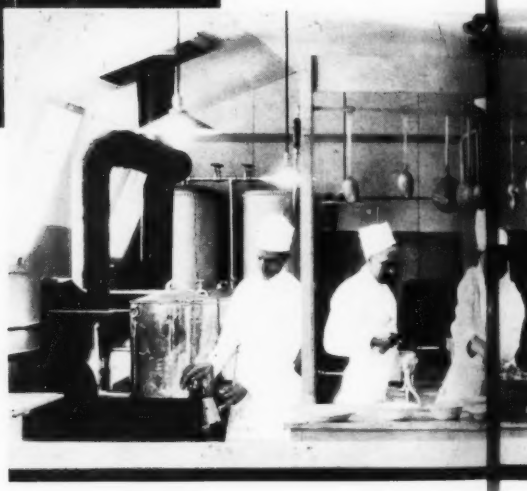
Paul hauled water for his North Dakota camp from Niagara Falls in enormous tanks. When one of them sprung a leak crossing Minnesota, and had to be abandoned, it created the Mississippi River. That gives a small idea of the sort of thing Paul did as Boss Logger.

"They have fought tree insects on 13,000,000 acres," reported Johnny Inkslinger

After Paul had pretty nearly skinned the country bare of trees Uncle Sam got mad and blamed Paul for starting floods, ruining the hunting and fishing, and causing the soil to wash away, thus devastating the country and bringing on a host of plagues too numerous to mention. Paul vowed he would put all the trees back again if Uncle Sam would pay him for doing it.

Just then the Big War came along and Paul, seeing the problem Woodrow Wilson had on his hands ferrying soldiers across the Big Pond, offered to build a big bridge so the soldiers could march across. Wilson turned Paul's scheme down and took the logs he planned to use for the bridge and built wooden ships instead. Feeling he was neither appreciated nor wanted any more, Paul disappeared.

"And they have put in 3,272,964 man-days fighting forest fires"



Below — One of the many shining kitchens that feed the men of the CCC — grub in stupendous

Since his disappearance not more than a dozen people have taken the trouble even to inquire as to his present whereabouts. The truth of the matter is he moved up to the Milky Way. There, with his faithful followers, he set himself up in the business of Meditating the Universe. To keep tabs on Uncle Sam, Paul had Big Ole, his blacksmith, build a pair of field glasses, using a couple of dead moons for lenses. Zeb Hotfoot, his fleetest scout, and Johnny Inkslinger, his bookkeeper, established a Sky Mail and Transport Service so Zeb could travel back and forth between the Milky Way and the States investigating things and digging up reports for Paul.

When the big financial crash came in 1929, Paul shrugged his shoulders and decided he'd been wise to get out of the logging business when he did. Through his Big Glasses he watched logging camps shut down, saw factories close and bread lines form. He kept Zeb Hotfoot busier than ever bringing reports of what Uncle Sam was doing to straighten things out. As things got worse and worse he'd walk up and down the Milky Way and plan what he'd say when Uncle Sam got to the point where he'd have to call on Paul Bunyan as the only fellow who could fix things up again.

"I'll start things by putting the forests back together again," he would say to himself, remembering the charge Uncle Sam had made when he discovered that Paul had skinned off all the trees.

Then one day in 1933, while looking through his Big Glasses, he saw men building camps everywhere. "What's going on down there?" he roared at Zeb Hotfoot. "Get me a report on that, quick!"

That's how Paul Bunyan first got acquainted with his rival, Boss Bob Fechner, and his Big Crew, the Civilian Conservation Corps. Needless to say he was pretty much disturbed and disappointed that Uncle Sam hadn't given him the contract to Bolster Up The Nation, after all the plans he'd made. He'd set his heart on landing that job.

"Serves me right for getting huffy and going off on a pout," he decided. "Well, I'll just watch this new Boss and see how he makes out. He's got the right idea, anyhow, starting in the forests just as I had planned."

Day after day, Paul Bunyan watched Boss Fechner's crews get the camps ready and haul in supplies in long lines of trucks. Then he saw smoke curling up out of factories here and there. "Must be they've run out of things already and got to start making more. How big a crew has he got?" he asked Johnny Inkslinger.

"Three hundred thousand," Johnny replied, "without counting all the straw-bosses he's hired to show the boys what to do, nor the carpenters putting up the camps, nor the army officers."

"Did you say boys?" Paul demanded. "Do you mean young fellows?"

"That's right," said Johnny. "Young fellows

amounts is swallowed up — 20,000,000 pounds each of beef and potatoes alone in a single year!

"Let's think that over," said Paul—"78,000 miles of truck trails!"

who couldn't find jobs anywhere. Boss Fechner told 'em he'd teach 'em how to work in the woods and grow up to be first-class Paul Bunyans."

"Did he say that?" Paul asked, squaring back his shoulders for the first time in sixteen years, and puffing his big pipe a little faster.

"Sure, people still talk about you in the States, and the big things you did when you were Boss Logger," Johnny replied, glad to make the Boss feel his oats again.

"Well, that's fine," Paul said. Then he turned to Zeb Hotfoot: "Zeb, you breeze on back down there and keep relaying me reports about this new Boss. He does things like I used to, and I'm going to watch his record."

So Paul kept in touch with things and Johnny Inkslinger kept tallies on the new Boss. He watched through the Big Glasses, squinting here and there, up the mountainsides, down in the valleys, across the plains. In and out of towns and cities and around farms, forests, parks and fields he'd watch what went on. At night in his shanty he'd get the big ledgers out and look over the record. He'd run his finger up and down the columns, pausing occasionally to dig out a journal from the mile-long shelf to compare the records with his own deeds of by-gone days. "By gum, he's overtaking me," he'd say, "but I still got an edge on him."

Daytimes he'd spring questions on Johnny Inkslinger like this: "How many kids he got working for him now?"

"Over 500,000," Johnny said one day in 1935.

"By jiminy, that's more'n I ever had at one time," Paul acknowledged. "How many camps has he built now, altogether?"

Johnny turned over a few pages, added diligently and replied, " 'bout four thousand."

"How many bunk shanties and cook shanties does that make?" Paul asked next.

"Oh, somewhere 'round twenty-four thousand."

"Hmm—m—", Paul said slowly. "Think of all the lumber, nails, doors, window glass, screens, roofing paper, everything that went into those buildings. Think of the number of carpenters it took to build them. No wonder things are picking up in the States."

"That's an item, all right," Johnny added. "They've all got electric lights and plumbing, too. That means a lot of wire, light bulbs, pipe and plumbing fixtures, and men to install 'em."

"Yes, that keeps a lot of men working in factories, packers shipping things, haulers delivering them, bookkeepers keeping account of costs, invoices and papers, people writing letters and checks, bankers totaling deposits, and pay rolls everywhere. It's bound to loosen things up. By the way, how many trees has he planted now?"

"Close to a billion," came the answer.

"Cripes! A billion? That's about a million acres, and here it is only 1936!" Paul ejaculated. "At that rate he'll soon cover up all those bare

spots I left when I skinned off the good logs and run them down the river, won't he? Well, that's a good thing. The country needs trees. How many miles of truck trails has he built now?"

Johnny ran through some late reports Zeb had sent up. "Seventy-eight thousand miles of truck trails and minor roads constructed in forty months since he started on the job, and nineteen thousand miles of foot and horse trails. But wait, he's built over fifty thousand miles of telephone lines, seven million rods of fences, and more than thirty-seven thousand bridges of one kind or another, and—"

"Wait!" Paul commanded. "Let's think that over a minute. Seventy-eight thousand miles of roads and truck trails. That's over three times around the earth, and fifty thousand miles of telephone line—that's twice around. Think of all the wire in those chatter lines. That kept mines and factories busy. To say nothing of the scrapers and trail machinery and equipment, dynamite, rock crushers, picks, sledge hammers, shovels and things the crews had to have on road and trail building. The grocers, landlords and clothing manufacturers must be buying black ink again by now."

Another day Paul was having lunch. "After we eat," he said to Johnny, "let's look up and see what kind of grub orders this new Boss turns in."

"Ready right now," Johnny replied, setting down his coffee cup. "Without counting the officers, superintendents and straw-bosses, he's feeding about three hundred and fifty thousand now. My latest record just covers three months' grub, so if we multiply it by four maybe it'll be about right for a year. Well, here's beef, 20,000,000 pounds of it; potatoes, 20,000,000 pounds; flour, 23,000,000 pounds; pork, 8,000,000 pounds; string beans, 5,000,000 cans—say, you don't suppose the crews go in for pork and *string* beans in the States now, do you, Boss? There's not a word about *dried* beans in this list. That wouldn't seem natural grub for us, would it?

"Well, here's coffee, 4,000,000 pounds; salt, 1,000,000 pounds; vinegar, 40,000 gallons; cocoa, 500,000 pounds; milk, 2,000,000 gallons; sugar, 10,000,000 pounds; rice, 1,000,000 pounds; and here's bacon, butter, chickens, onions, lard, prunes, oatmeal, cinnamon, eggs, gosh, there's 31,937,490 of them. Think of all the hens it took to lay that many eggs, Boss; and the wheat and corn the farmers raised to feed the chickens. Pretty nearly everything in that list was raised on farms in the States, wasn't it?"

"Yes," Paul said, "all but the cinnamon, cocoa and coffee, I guess. That's a big market and helps farmers pay interest, taxes and insurance, to say nothing of new clothes for the family and gas for the car. It all helps. Besides that, this new Boss is helping farmers learn new methods to prevent soil erosion. I've been watching the crew through the Big Glasses working on the farms, terracing and building gulley dams all over the country. Good job they are doing, too. Has Zeb sent up any figures on that?"

"Yes, I think so. Erosion control check dams in gullies, permanent type, 211,327; temporary dams, 2,487,415. Then here's bank sloping, 173,655,425 square yards; seeding and sodding, 237,540,491 square yards; tree planting in gullies, 189,097,731 square yards, and a lot more figures like that."

"Does that report tell anything about forest work—later'n what we had before?" Paul asked.

"Yep! Here's forest stand improvement on 2,504,808 acres; tree seed collection, 312,513 bushels of cones and 4,716,881 pounds of hardwood seeds; fire hazard reduction along roads and trails, 54,000 miles; developing and attending tree nurseries, 1,791,608 man-days; fire prevention, 2,400,000 man-days; disease and insect control on over 13,000,000 acres; fire breaks, 51,465 miles. Criminy! Every time he goes in for miles of anything he goes about twice around the earth before he stops. Well, here's one more item about forest work. Fighting forest fires—3,272,964 man-days."

"And the boys do a good job fighting fires, too," Paul commented. "They've saved a lot of property, valuable timber, game and young tree growth. Besides that they've used a lot of supplies and tools doing it. Didn't the generals decide during the Big War that it takes about seven men to keep each fellow at the front line supplied? Maybe something like that applies here, too. The boys are on the front line in the forests and fields and the men are in factories and on farms producing things and sending them along to the boys."

"That's how it works," Johnny agreed. "If it's seven, that makes over 2,000,000 men kept busy to keep 350,000 boys working. If it's five, that's 1,750,000 men."

"When you were reading about the grub, I was wondering about clothes," Paul said. "What about that?"

"I was going to mention clothes," Johnny replied. "This list'll give an idea: wool drawers, 1,400,000 pairs, and same number of undershirts; caps, 350,000; overcoats, 350,000; shoes, 7,000,000 pairs—but that's for *all* shoes bought so far. Here are also items for overshoes and rubber boots, wool coats and pants, warm mittens, wool socks. There are shirts, too, and neckties for Sundays."

Paul remarked: "Think how many men and women are working in factories, and the number of sheepmen and cattlemen kept busy raising shoe hides and clipping wool. Think, too, of cleaning, carding, spinning and weaving wool, cutting patterns and sewing, making cotton thread, and sorting, packing and shipping. Keeps a lot of people busy, you bet."

"I'll say," Johnny agreed.

Paul lighted his quart pipe and stuck his feet up on his desk. "How many trucks and automobiles has Boss Fechner bought to haul the boys and things around in?" he asked.

Johnny looked that up. "Around 45,000, so far."

"Everybody's got in on this job," Paul commented, blowing a huge smoke ring. "Think of all the iron miners, steel and coal workers, mechanics and rubber factory hands it takes to make all those trucks and cars and to keep them in repair. Then there's the gasoline and oil and grease they use."

It was getting late (*Continuing on page* 201)

Abroad the Dutch Elm Disease Marches On. Upper Left, in Buxted Deer Park, Near London, England. Left, on Road Between Namur and Marche, Belgium. Upper Right, Near Chalons-sur-Marne, France. Right, in the Suburbs of Utrecht, Holland

# THE DUTCH ELM DISEASE IN EUROPE

By R. KENT BEATTIE

THE DUTCH elm disease, now threatening the American elm, was brought to the United States in burl elm veneer logs imported from Europe during the years 1926 to 1933. These logs are now excluded by quarantine. Seven years earlier, in 1919, the disease was discovered almost simultaneously in The Netherlands, France and Belgium.

In The Netherlands foresters first found dying elms near Tilburg, south of Rotterdam. Specimens were also collected at Hoeven, near Oudenbosch, about twenty miles west of Tilburg. In northeastern France roadside trees between Chalons-sur-Marne and Ste. Menehould, east of Paris, were called to the attention of the Versailles Experiment Station. They showed symptoms of what proved to be the same unknown disease, as did trees found in Belgium. It is possible that war conditions in this general region prevented the discovery of this disease during the years from 1914 to 1918.

In 1920, either because of the greater prevalence of the disease or because of a more diligent search on the part of foresters, there was a widespread

recognition of it as a serious disease of elms in the Low Countries and northeastern France. Since that time it has spread throughout almost all of continental Europe south of Scandinavia and to England.

With the discovery of this entirely new and unknown disease energetic research was begun by Dutch scientists, and a very creditable series of publications have supplied the world with much needed information concerning it. No comprehensive effort, however, was made by the Dutch at that time to eradicate the disease. It increased until in many places the roads were lined with dying elms, and through their cutting elm logs were placed on the market too fast for economical utilization.

But five or six years ago a systematic official control campaign was undertaken by the Ministry of Agriculture and Fisheries, assisted by local officials in regions of The Netherlands where there were notable elm populations. Authority for compelling the cutting of dead and dying elms which were found and marked by official scouts came from a Royal Decree. While this campaign came too late and was not comprehensive enough to eradicate the disease, and was not intended to accomplish that purpose, it has been very successful in reducing the number of wilting and dying trees and in permitting a more orderly and economical utilization of the elm wood.

While destruction of the present elms is being delayed by this control program, Dutch investigators are making an energetic and thorough search for resistant individuals of European species and for resistant elm species from other parts of the world which have characteristics that will make them useful as substitutes.

A splendid collection of species, varieties and strains of elms has been assembled by the Willie Commelin Scholten Laboratory and the Park System of The Hague. These are propagated and grown in plantations in four different localities and are being systematically inoculated in large numbers with the elm disease fungus. Among European elms, the best results have been obtained with a strain of *Ulmus campestris* produced by vegetative propagation from a tree which came originally from Madrid, Spain. Among introduced species, the greatest resistance is found in the Siberian elm, *Ulmus pumila,* as it was in American investigations. With these resistant trees and others later developed, the Dutch hope to replace their native elms.

Unfortunately for the United States, the Dutch found that the various American species of elms are all susceptible to the disease and that the treasured American elm, *Ulmus americana,* with its unique vase form, is perhaps the most susceptible of them all. This is also confirmed by our work in America. However, it is possible that with the huge population of American elms in the United States, resistant individuals may be found.

No control campaign, such as is in progress in The Netherlands, has been undertaken in Belgium or in France. In these two countries, among the elms which frequently line the roads or form fence rows between fields, wilting and dying trees are seen almost everywhere. Counts of infected annual rings in a log recently cut between Rochefort and Dinant, in Belgium, showed disease in the tree with certainty as far back as 1919, and with some probability in 1915 and 1913.

From the railroad between Calais and Paris, in France, dying elms are almost always in sight and frequently are seen in considerable numbers. For miles along the roads east of Paris the old elms are mostly gone. At first they were replaced by young elms, but with the death of these also replacements are being made with other kinds of trees. The beautiful arches which formerly glorified the avenues around Versailles were often composed of elms. These are now gone or are riddled by the disease. They are being replaced by other kinds of trees.

The disease was seen last summer in central France, around Vichy, where burled elms are very common. Some of our imported burl elm logs came from that region. The burls may grow on tall trees which have never been cut back or they may grow on trees in fence rows which have been pollarded for fuel. However, pollarded elms form the principal source of commercial elm burls.

Elm burls occur in various parts of Europe and formerly were shipped to the United States from England, France, Czechoslovakia and Germany. They are often sold under the name of Carpathian elm. No one knows what causes an elm to produce a burl; possibly it is a gall, akin to crown gall. Nor are burls confined to one species of elm. They are found on field and roadside rather than on forest trees.

Recently published information indicates that although the disease has been recognized in Italy for only six or seven years, it is very serious there, particularly in the Provinces of Emilia and Campania. In one locality in Emilia ninety per cent of all the elms are reported dead; in five other localities dead elms run from fifty-two to seventy-eight per cent of the population; and in nine more localities from thirty-three to forty-five per cent are gone. The elm is very valuable to the Italian grape grower as living supports for his vines, and

**AN APRIL WOOD**

**Only the great Creator could**
**Have designed an April wood;**
**The bronze and coppery tasseling**
**Of ash and alder in the spring;**
**The boughs of pink wild currant flung**
**In misty wind-blown scarves among**
**The green and silver tapestries**
**Of cedar and of dogwood trees.**
**Only He could time so well**
**A recurrent miracle**
**Of violets and trilliums;**
**Of the carillon which comes**
**From feathered throats as new life stains**
**Maple buds and osier veins;**
**Only God could have conceived**
**Willow branches, April-leaved**
**Against a lilac tinted sky,**
**And one small blue-winged butterfly.**

**—Ethel Romig Fuller.**

since all three kinds of native elms are susceptible to the disease, resistant strains and species, especially the Siberian elm, are being planted.

In England, the elm disease was not known until it was found at Totteridge, a northwest suburb of London, in 1927. Nevertheless, this past summer we found brown streaks in, and cultured *Ceratostomella ulmi* from the 1923 annual ring of elms near Newmarket, northeast of London. There is no reason to suppose that Newmarket was the earliest infected locality in England. The disease, therefore, was probably present in that country several years before it was actually found.

When the infected trees were discovered, British authorities hoped to eradicate the disease, but scouting in 1928 revealed that it was widespread in the south of England and that there were several important disease centers. All hope of eradication was then abandoned. The elm disease has now spread northward until it is within thirty miles of the Scottish border at Felton, in Northumberland, on the east coast, and in the English lake country on the west. It has not yet been found in Scotland.

In England elm species are very badly mixed but the type known as *Ulmus campestris,* usually called the English elm, seems to be the most resistant of five species and two varieties. Attacked by the elm disease, it may develop a "die back" rather than a rapid killing. This "die back" may continue from year to year. Likewise, the disease does not move down within the trunk with as great rapidity as it does in the American elm.

Apparent recovery in an infected elm does not necessarily mean future freedom from the disease. Ring counts made with an increment borer and also on ax-cut logs in England, The Netherlands, Belgium and France frequently showed successive infections over a period of years before the tree died. A tree near Utrecht, Holland, showed *Ceratostomella* in the 1921, 1932, 1933, 1934, 1935 and 1936 annual rings. The tree was nearly dead. At Bergerac, France, a tree had infection in 1919, 1920, 1923, and in every successive annual ring from 1927 to 1936. All that was left alive of this tree was a scattering of sprouts along the trunk. Recovery if it occurs does not produce immunity, nor does it prevent the infected tree from becoming a reservoir of the disease.

Certain regions in England are notably stricken by the disease. The (*Continuing on page* 201)

Burled Elm on Estate Near Worcester, England, Where 600 Trees Have Been Killed

The Disease Has Struck the Four Rows of Elms Lining the Approach to Windsor Castle

# WE GO A-FISHING

By GRIF ALEXANDER

"OH, would I were a bird!" the poet sang; but never warbled "Would I were a fish!" And yet a fish has beauty of a sort and lives a life as strange as any bird's; sees stranger sights, if judged by human eyes; and has, at least, as much intelligence. This proves, mayhap, that man's a curious creature with curious tastes;—at least that is the view (we make a guess) of any honest fish.

For man loves fish. He loves to drop a line to let them know that he is well; to have one send a message up a tightening cord that it has struck some most inviting bait which treacherously hides a wicked hook. And then he'll play it, kidding it along, and pull it in and look at it with pride; and take it home and show it to his wife and tell her of the skill it took to catch so beautiful, so wonderful a fish. Ay, man loves fish. Especially when fried.

We went a-fishing in the early morn on board the *Margaret*, a Chesapeake Bay day-cruiser with a small cabin and a roomy cockpit, and an engine which with steady beat kept a gay propeller merrily spinning.

The sun, as yet behind a drab horizon, sends hesitant heralds to announce his coming, pale beams that presently assume bold brightness that edge the clouds with gold and silver and deck the dawn with violets and roses.

The broad Patuxent in reflective mood makes molten masses of the precious metals and cunningly absorbs the hue of flowers. And ere we reach Drum Point a wanton breeze airily brushes its cheek and makes it laugh, a silent laugh, a gust of bright white laughter. We laugh with the breeze as it goes its way.

We have on board a man and brother who does all the rough work; starts the engine; drops the anchor; pumps out the bilge; cuts bait, and makes the toadfish holler "Uncle!" before he tosses them in the vasty deep.

It is a treat to see him cut up bait. So casually he handles crabs you'd think they had no claws or never learned how to use them. He robs them of their armor, pulls their legs, explores their "innards" tactfully; then cuts the dainty little tidbits for the hooks. A major operation this; and though the patient dies he dies to give us sport. And here's a lesson sweet for all to learn:—When folks are happy never be a crab.

Our rods we handle lovingly, and view the glories of the morning, fresh and sweet, as joyous introduction to a day devoted to a task that's worth the while.

We get the needed sights, the engine stops, the anchor's dropped, the lines are swiftly cast, and then we wait and look around a bit.

We're not alone; the bay's alive with craft; ketch, schooner, bugeye, skipjack, lugger, cat; and fishermen in every one of them. Calm is the water, peaceful is the scene. But should a storm spring up how swift we'd make for port! When the wind whistles its nor'-easter fife you surely hear the outboard motors drum.

The fish begin to bite. We know the thrill of titillative doubt plus earnest hope. Not every little nibble means a catch, nor is there certainty that the hook will hold it; less certainty with trout than croaker; for though the latter is the less combative he keeps, perforce, a stiffer upper lip.

The netted bag that's hanging o'er the side soon knows the weight of fish, two and three pounders. And breakfast time arrives and with it appetite.

For breakfast we've hot coffee and cold meat and buttered biscuits and some hard-boiled eggs. And one bold spirit with no fear of thirst chews on a strip of herring dry and salt.

The herring's called the king of fish at times but why I do not undertake to tell. It feeds more people than do other fish, but that's no attribute of royal-

PHOTOGRAPHS BY C. O. BUCKINGHAM

ty; it is oftener the other way about. And though a king has many enemies they're not as numerous as herring's foes. Perhaps we speak of them as kings the way we speak of sovereign people;—all poor fish we gather in a net of metaphor.

The herring are abundant in these waters; but they are for professionals with nets; they're fish that never, never take the hook. And we have other fish to fry today. We smoke our pipes and talk about the catch, just a few trout but plenty of the hardheads.

The hardhead is a fish of several aliases; croakers and grunters, for instance; and oft in city restaurants they masquerade as bass, sea bass, and taste as good as any.

Nor are the extra names unusual; for what we know as trout are sometimes called weakfish or squeteague—call 'em what you will.

But when it comes to monickers there's none to equal that monstrosity that oft, too oft, gets on the lines of fishermen and steals their time and bait; and bears their name; and that's the angler who throws out lines to catch the littler fish he longs to eat; ay, that's the angler,—toadfish, oysterfish, the monkfish, goosefish, frogfish, fishing frog, the allmouth, thickhead, principally mouth. And yet it cannot well be said that toadfish die in vain. Hogs love them cooked with corn.

And other pests are eels that nibble bait in little bites and clean your hooks too well. And this is bad enough; but what is worse is catching them, for then they fill the boat with writhes and wriggles and a dour dismay; and catching them a second time to kill them is quite a job for inexperienced men.

Yet there are men who seek them! Strange but true. To sniggle eels it is said to be amusing. You stick a needle in a worm and when an eel has swallowed worm and needle the worm and needle turn and stick inside the gullet of the eel. Both worm and eel, I fancy, must enjoy it.

These things we speak of as we idly smoke; tell of our preferences in fish and cooking; prove to each kindred spirit that we all appreciate the gustatory joys that hardheads, oft maligned, will yet afford. Late in the fall the older croakers smack somewhat of iodine where the flesh is dark; but in the spring and summer they are tender, tender as chicken and every bit as sweet.

We've done so well we know no eager haste. We envy not the osprey nearer shore who like a plummet drops upon his prey, then slowly rises, a croaker in its claws. But hold! Is it a hardhead or a blue? If it's a bluefish there is sport ahead; and straightway stripped of laziness we look for signs of those bold hunters of menhaden.

The signs are gulls, who chase flirtatious alewives. Ay, alewives or menhaden, take your choice. Or call them bunkers, whitefish, bonyfish, or fatback, pogy, skippaug, yellow tail; and these are but a few of many names this member of the herring family boasts.

We watch the busy seagulls from afar. The surface of the water seems to boil. 'Tis not alone the gulls that chase the pogy. The tailors (blues) are also on their track.

We're on our way. We cannot go a-chumming. We lack equipment for this gentle sport. You need minced alewives if you'd chum aright. You grind 'em up and throw them overboard. The oil and mincemeat lure the tailors to you. And with lines too tough for them to chew and with strips of alewives as your bait and lure you hook your blues; and sometimes pull them in.

Chumming is out; and so we go a-trolling. Discarding rods our handlines we cast out, each with a silver spoon and hook of steel. And when a school is reached the boat moves round in little circles while our lines that trail keep the spoons moving like the fish they ape. The greedy tailor, traveling twice as fast, leaps to the lure and takes it at a gulp. And then he fights to lose the fish that bites him and now and then succeeds in getting free.

We're doing well when school breaks up and closes. Alewives and bluefish and seagulls disappear; then reappear a furlong off and we in hot pursuit repeat our old maneuvers.

And when at last we're homeward bound, with fish enough to feed the neighborhood, we think the day well spent with work well done.

What say the bluefish traveling to the south? A silver spoon has ruined many a mouth.

A Modern Tractor—the New Horse in the Lumber Woods

# LOGGING THE NEW WAY

**Power Logging, Which Replaced Horse Logging to Meet Quantity Production, Now Gives Way to the Tractor—and an Old-Time Logger Sees a New Day for the Forests**

By JAMES W. GIRARD

Throughout the greatest and possibly the most vivid period of American logging, horses have held a position of preeminence in woods operations. They accompanied the loggers on their march from Maine to the Lake States, to the pinelands of the South and to the great forest empire of the Pacific Coast. Now, with logging entering the machine age, Old Dobbin is on the way out, leaving the far-flung timberlands pretty much in possession of his snorting, belching, mechanized cousin, the tractor.

The railroad first broke Old Dobbin's hold on logging. Late in the 70's timber in the Lake States became more and more inaccessible and railroads came into use for primary transportation. When it became necessary for the lumber industry to seek new fields in the South and West, the railroad for primary log transportation was adopted on a large scale. At the same time came the development of various power systems of logging. Power skidding, for example, which was first employed in the Lake States around 1883, was used extensively in the cypress swamps of the South and later in southern pine, Pacific coast and other forest regions.

From a forestry point of view there were many advantages in horse logging as compared with the power skidding methods. Areas logged in the early days with horses were in many cases left in shape to produce another crop of timber. But the coming of the logging railroad and the power skidding machine marked the beginning of wholesale forest destruction in certain regions. Large areas were cut clean, burned and left unproductive.

The lumberman has been severely condemned for this destruction. But it is well to consider, before too many coals are heaped upon his head, whether or not selective logging and leaving the forest area in a satisfactory state of productivity was at all practical in those days. Desirable as it may be, the best principles of forestry cannot always be employed in logging operations if they mean a serious financial loss to the logger.

The introduction of railroads into logging represented large initial investments and high improvements costs—too large and too high for selection cutting of, say, fifty per cent or less of the merchantable volume. It just wasn't practical. In fact, the United States Forest Service did not require light selection cutting until a few years ago because purchasers of National Forest stumpage maintained that it was not practical. The Forest Service has, of course, practiced selective logging for a long time in certain types and regions, removing from sixty-five to eighty-five per cent of the volume, but this was not the best forestry in many cases. And with present equipment and greatly improved logging methods it is not even good business in certain types and under certain conditions for the private owner.

Thus power logging, which replaced animal logging, with its costly equipment and destructive effect on the forest, fitted the needs of modern quantity production but precluded the practice of selective cutting. But now has come another method of logging which fits modern conditions of production, provides great flexibility of operation, actually makes greater profits for the operator, and, what is more, is adapted to the practice of good forestry. This new method is the tractor-truck combination.

The history of the tractor for logging purposes dates back to 1893 when one was put to work on a logging operation in California. This tractor was operated by a sixty horsepower steam engine, and was used chiefly to replace horses on long hauls. It was cumbersome and awkward in getting around through the woods. Also, it was top heavy and of the wheel type construction, which did not provide sufficient traction to pull heavy loads except on smooth roads with favorable grades.

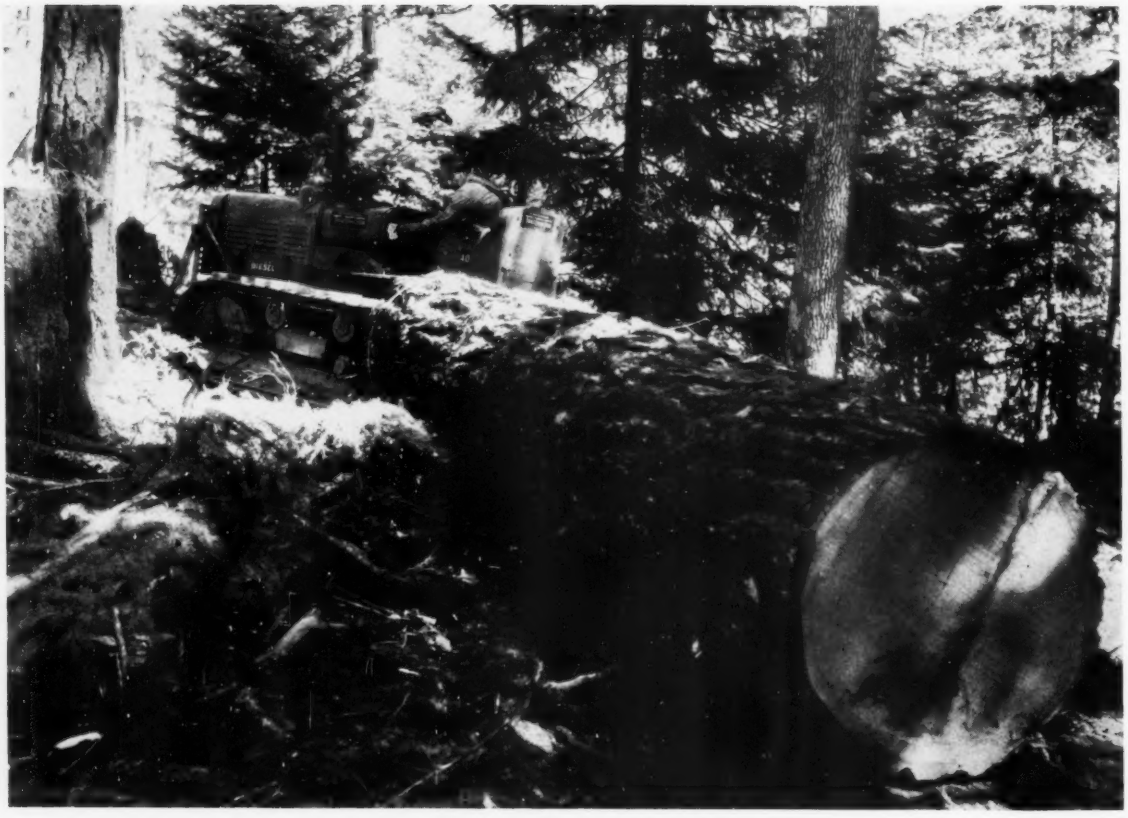
The track-type tractor was built in 1904 and was powered by a forty horsepower steam engine, capable of pulling at least one-third more than the previous sixty horsepower wheel type. This was the first major change in the construction of tractors. Its adaptability for logging purposes was definitely proven, though it still had many weak points.

The next improvement of major importance was the development of a gasoline engine in the track-

Tractors Were First Tried in the Woods in 1893, But Not Until 1931 Were They Developed Sufficiently to Transform American Logging Methods

The First Tractors Operated Only on Smooth Roads with Favorable Grades. Today They Make Their Own Roads, as Shown Above, and Operate Any Place a Horse Can Go

Whole Tree Lengths and Larger Loads Are Handled by the Modern Logger



Logging the New Way. Above, Ground Skidding. Below at Left, Skidding with Logging Arch. Below at Right, Secondary Hauling. Opposite Page, Loading Truck for Primary Hauling

Building Temporary Dams to Float Logs That Have Been Left High and Dry by Unusually Shallow Water

Primary Log Hauling the Modern Way. The Largest Load Ever Hauled in This Manner Contained 210,000 Board Feet

The Use of the Tractor to Power Portable Sawmills Is One of the Most Recent Developments in Lumbering

The Tractor Plays an Important Part Today in Fire Protection. Plowing Fire Lines Around a New Forest

type tractor, which was brought out in 1905. These tractors were built with a tiller wheel in front to aid in steering, which meant that they were awkward in moving around in the woods. Consequently they were used chiefly for hauling logs on wagons.

It was not until after the World War that tractors began to take a prominent place in the woods for log-skidding purposes. Basic changes in design were made. The steering mechanism was so greatly improved that a tractor could "turn on a dime" and go practically any place in the woods that a horse could go. The loggers, however, were still horse-minded in many ways, and tractors were used with equipment designed for teams, such as wagons and stiff-tongue or slip-tongue carts. About 1917 direct ground skidding with tractors was put into use in several regions and proved very successful.

The next improvement in tractor skidding was the invention of the steel pan. This was one inch thick and turned up at the nose. It prevented the front end of the logs or trees from digging into the ground and for this reason much larger loads could be skidded than by direct ground skidding. Then came the caterpillar hydraulic wheel unit which largely replaced the old slip-tongue wheel type of logging. With these units loads as large as 8,000 feet could be hauled economically. Loggers also found that the track-type tractor could be successfully operated on steep slopes.

The great flexibility of the improved tractors, the power to handle large loads, and the ability to operate on steep slopes under practically all kinds of conditions meant that the use of animals on many logging operations was definitely out of the picture.

One serious drawback to hydraulic wheels was that logs had to be bunched by some other method, an operation which cost considerable money in some cases. A lumber company in the West conceived the idea of mounting a winch on the back of the tractor and placing a fair lead unit on top of the wheels instead of the hydraulic lift. The first fair lead arch was thus developed. This unit could handle long logs or whole tree lengths but, most important of all, it could do its own bunching. By 1930 the fair lead arch was an established unit.

In 1931 the first caterpillar Diesel tractor went into the woods. This was probably the most important piece of logging machinery ever manufactured. It was important to both logger and forester because the cost of operation was greatly reduced and selective logging thus became practical in many cases. This type of tractor has revolutionized tractor logging. I believe that there are now manufactured from thirty-five to ninety-five horsepower Diesel tractors. It would not be surprising to see a 125-horsepower unit manufactured in the near future for handling the large timber on the Pacific Coast.

The use of tractors today in logging and lumbering operations covers a wide field. They are used for ground skidding, pan skidding, hauling on bummers, fair lead arch logging, wagon hauling, winch, single or double drum logging, trailing logs in chutes, transportation of logs on sleds, road construction and maintenance, building fire lines and fire guards, building railroad grades and tractor haul roads, reforestation work such as preparing the ground for planting, moving camp, loading sleds or trucks, powering portable sawmills, plowing snow roads or plowing out strip or branch roads, icing roads for sleigh hauling, and toting supplies.

Although horses are being replaced by tractors, they are not entirely out of the woods. No piece of equipment has ever been manufactured that can handle logs as cheaply as horses for short distances and under certain conditions. On smooth ponderosa pine slopes, and with timber running from six to seven logs a thousand feet, up to distances of two to three hundred feet from the track, logs can be skidded with horses more cheaply than by any other method. In many places in the South, in stands of small to medium-sized timber, where the topography is flat and trucks can be driven almost anywhere, logs can be bunched with horses cheaper than by any other method.

From 1918 to 1922 the writer was connected with a logging study in eastern Washington, northern Idaho and western Montana. As a part of this investigation a representative area of ponderosa pine in Montana, with trees averaging from 700 to 1,200 board feet, was selected for a detailed study of tractor logging. Approximately fifty per cent of this area was logged with horses, the rest of it with tractors. The tractor skidding was done in full tree lengths. The area was mapped on a large scale before logging, and a careful count made of the young growth above one inch in diameter. After the area had been logged, a second examination was made, along with a count of advanced growth.

This particular study showed that horse logging was slightly more destructive than tractor logging. The logger was interested, however, in leaving the area in good condition, and for this reason exercised considerably more care in felling the timber and removing the logs than would be the case with the average operator.

Logging studies made recently in the Douglas fir region on the Pacific Coast, and also in the ponderosa pine region of eastern Oregon, have proved conclusively that in many cases selective logging with tractors and trucks is not only feasible but will yield greater immediate profits and, in the long run, much greater profits as the result of increasing the forest growth.

These studies show that under certain conditions, even in the Douglas fir region, tree selection or light selective logging is entirely practical. The results of such a study on a large ponderosa pine operation in eastern Oregon, showing the practicability of selective logging, were so outstanding that this particular company decided to change from cutting (*Continuing on page* 199)

# EDITORIAL

## What Price Flood Control

IN HIS address of March 4 President Roosevelt cited uncertainty of judicial decisions as a bar to free-action by the national government in meeting problems of flood control. It is to be regretted that the President was not more specific in his reference, because his meaning is by no means clear. Conservationists generally, we think, would place the blame for tardy and inadequate flood control action not upon the Judiciary but upon the other two branches of the government—the Congress and the Executive. And the record would appear to bear them out.

Congress has passed many acts, none of which have been invalidated by the courts, granting executive authority for a great variety of flood control activities. One notable example is the Weeks Act of 1911 authorizing the government to acquire forest lands on the watersheds of navigable streams and to develop them as National Forests for streamflow protection. It is a matter of record that the authority provided by this Act has been exercised in a singularly desultory and half-hearted manner, due not to any legal restrictions or uncertainty but solely to the refusal of Congress and the concurrent administrations to formulate comprehensive programs and to provide the necessary funds for their execution. Through the years, appropriations at times have been hardly sufficient to keep the Act alive.

It is to the credit of President Roosevelt that he has done more to advance the work contemplated by the Weeks Act than any previous president, but he has done it not by calling upon Congress for direct appropriations under the Act but by allocations of emergency funds already appropriated. As a matter of fact, his budget director two years ago refused to recommend any appropriation under the Act and this year included an item of $2,500,000, it is understood, only because the new Emergency Act prohibits allocating emergency funds for this type of work. The fact remains that the constitutionality of the Weeks Act has stood for twenty-six years and under it as well as other forestry legislation, the legality of which has never been questioned, the way is clear for comprehensive measures to protect the headwaters of our flood rivers against rapid run-off and soil erosion.

Congress has passed numerous other laws authorizing the government to deal with flood problems. The vast system of levees, reservoirs, spillways and dams in the Mississippi is a case in point. Such work has been going on for more than half a century, limited only by the amount of money made available by Congress. The latest act is that of June 22, 1936, known as the Omnibus Flood Control Act. This legislation gives a clear field to the Departments of War and Agriculture to pool their knowledge, techniques and efforts in planning and carrying out measures of flood control. It authorizes expenditures of $10,000,000 for surveys and planning and $310,000,000 for necessary works. In brief, the Act gives the government a broad mandate to pursue flood control measures from the mouths of our navigable rivers to their uppermost sources. No legal barriers have yet been raised against it Indeed, the Supreme Court has never outlawed a flood control project.

In the light of these acts granting unquestioned authority and freedom to the government to proceed with all sorts of flood control measures, the President's inference that legal barriers are in the way is difficult to understand. The price of flood control at this urgent time would appear to be not legal clarification but administrative action supported by congressional appropriations under laws that now exist and such additional ones as Congress has the unchallenged power to enact. This calls for comprehensive, well-planned projects that coordinate the activities of the executive departments and that apply to the problems of each river system the best engineering and biological techniques the government can call into play.

It is admittedly true that if the President is thinking of legislation that links flood control with power development, legal uncertainties at once arise, but we cannot believe that he is. The need of controlling floods is immediate and compelling and is so recognized nationally. The power question, on the other hand, is highly controversial, with public policy yet to be molded. It would be temporizing with human distress to delay flood control pending determination of power policies. The two questions should be dealt with separately and should stand on their own merits. Otherwise, flood control will continue to make haste slowly and inadequately.

"Sandy" in the lead

# HEALTH AMONG WILD ANIMALS

By EARL C. O'ROKE

ORDINARY folk as a rule hold to the opinion that wild animals are full winged and free, sound and fleet, and always healthy. I myself long held to this belief but have had my illusions regarding the diseases of wild animals sadly shattered. My point of view can best be introduced by a little personal chronology.

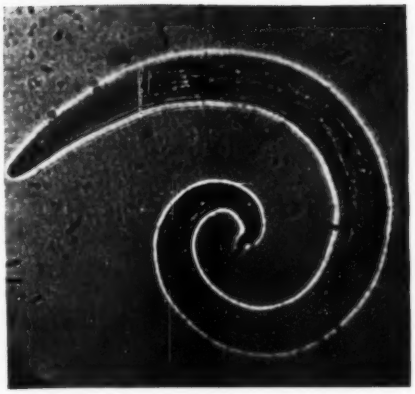
As a boy on my father's farm, I spent a great deal of time in the glaciated, partially wooded region, learning the ways of wild animals. One day when a local veterinarian was treating a sick horse for my father, I came out of the woods carrying by the tail an opossum which I had captured. Noticing the death feint of the animal and hoping perhaps to try me out, the veterinarian asked whether my pet was sick or dead. But before giving me a chance to answer, he explained that wild animals do not have diseases. Then he asked me if I wanted to know what was the matter with the horse and again replied before I had time to answer. I shall never forget that big word—no wonder the horse was sick—"Thromboembolic colic." Looking back through the years, I am not so sure that the diagnosis was correct. Parasitological diagnoses are not so easily made by shotgun methods.

This mistaken notion about wild animals' never being diseased was to persist a long time in my education. Nothing happened during my high school years to alter it. College biology courses including pre-medical work in the university came and went, and still the opinion remained unchallenged. Not until after graduation, and as a member of a field party doing biological survey work, did I begin to see the light. This casual interest, increased by later graduate studies and aided by field experience, has ripened during the last decade until now my vocation, in part at least, is ferreting out and interpreting the part that various problems of parasitism and disease play in the lives of wild animals. It is hardly correct to limit them to wild animals for they may concern domesticated animals and even man himself.

"Why is it," I am often asked, "that domesticated animals are more subject to disease than wild ones?" I do not admit the validity of the assumption. Animals were wild before they were domesticated, and pathogens of various kinds must have evolved before men succeeded in enslaving animals. Furthermore, there is well authenticated evidence of the antiquity of disease. Referring again to the fact that my education with regard to wild animal

Victoria Packard

My illusion supreme — surely such a graceful animal must be free from disease



The larval lungworm—one of numerous parasites that deny the popular fantacy that deer are always healthy

Photomicrograph of the blood parasite (Leucocytozoon anatis) which made "Sandy," the author's little pet duckling, famous. The disease is transmitted to ducks by the bites of black flies

Lungworm pneumonia. The right lobes of these deer lungs are badly congested

diseases has been a long drawn out process, I learned incidentally one day that crows may have bird malaria. As I remember it, my reaction was that common crows might have malaria, but surely not my beloved waterfowl whose migratory flight I so eagerly awaited in the spring. Were not the wild geese and ducks full winged and free? But that was before I had experimented unwittingly with Sandy, the little pet mallard duckling who went to the biological station for a vacation and came back famous,—the only survivor of a little flock that had been beset by a dread malady. But, I am getting ahead of the chronology and will have to return to Sandy later.

As an illustration of how the work of an investigator in the field of wild animal pathology is influenced by contemporary thought and opinion, I might report briefly my finding of a protozoan blood parasite, *haemoproteus lophortyx,* in the California Valley Quail. The first parasitized bird was taken adjacent to the State Game Farm where exotic birds were being produced. The initial working hypothesis was that the parasite was an introduced form. It was not until various methods of sampling extended the studies far from any possible source of contamination from the game farm that the parasite was found to be indigenous to the native quail.

The ectoparasitic louse fly which transmits this parasite by sucking the blood of its victims is an elusive creature which darts away quickly after its host is killed. One seldom sees it unless he puts the quail in gauze bags immediately after they are shot, or live-traps the birds in a manner to retain the flies.

Having found this louse fly in a given locality, I desired to ascertain how long it had been known in the locality. Museum records were lacking, and I tried questioning old timers. As a rule, I do not put much faith in this method of procedure, but I will bank on what old Andrew, an ex-cowpuncher, told me. He was a good observer. This is his story, reproduced as best I can in his own dialect: "Was twenty year ago und I was hunt some quail. Boom, I shoot four und quick der game warden come und I stick 'em quail down my neck inside of shirt. Der game warden talk long time and all the time something go itch. After dem game warden gone, I open shirt und zoom something go out yoost like dat. Was big black yoomping louse und go right into my hair behind dem ears."

Since I later corroborated Andrew's story with the exception of the part that the game warden played, I have no doubt that his observations were correctly described. In this particular study, more than three hundred quail were used. Wherever possible, the birds were live-trapped and liberated after they had served science. Forty-five per cent of them were found to be infected. The intensity of infection varied considerably. With rare exceptions, in certain lots studied, the mortality was low.

During the field study of the *haemoproteus* infection, another quail disease was encountered which caused mortalities up to eighty-five per cent. I refer to ulcerative enteritis which has since been studied by other investigators. A peculiar circumstance in connection with this latter disease is that it often breaks out among wild quail, live-trapped and held in close confinement. To an ordinary person outside his own cubicle of knowledge, this observation is without significance. To the conservation officer, acting on the pathologists' tip, it has often provided the clue that led to apprehension of a violator. A person holding a lawful permit to rear quail, for instance, has been found guilty of adding to his supply by trapping wild birds. The disease flares up in the shipping crates, the purchaser refuses (*Continuing on page* 200)

# RED MAPLE

*Acer rubrum*, Linnaeus

By G. H. COLLINGWOOD

EXTENDING over much of the eastern half of the United States and into Canada is the red maple, one of thirteen or more of the family *Aceraceae*, native to North America, and one of four eastern species to attain tree size. Because it occurs on low ground or in swamps, along the banks of streams where it will stand long periods of inundation, and on moist soils, it is frequently known as swamp maple. It thrives in any moist fertile soil.

Usually associated with other lowland trees such as black ash, the gums and cottonwoods, cypress and water oak, the largest sizes and best development are in the lower Ohio valley, while greatest abundance is in the lower Mississippi valley. Growth is rapid during the early stages, but trees seldom attain ages greater than 150 years. Long before reaching this age, under forest conditions a broad, round crown is developed with a moderately long clear trunk, the whole tree averaging sixty to ninety feet in height and one and a half to two and a half feet in diameter at breast height. Occasionally trees grow to a height of 125 feet and are five feet in diameter.

Red maple is best known by its three to five lobed, doubly toothed, simple, bright green leaves which are three to four inches long, nearly as broad, and occur opposite one another on the twigs. While smooth above, the leaves are finely hairy beneath and have slender stems or petioles two to four inches long. Although basically green, the stem may be tinged with red, and in the early autumn the leaves turn to brilliant shades of scarlet, frequently mixed with orange, giving one of many reasons for the

Open grown red maple develops a short trunk and a broad oval crown

Photographs by George J. Baetzhold

Latin name *Acer rubrum* which translated is red maple.

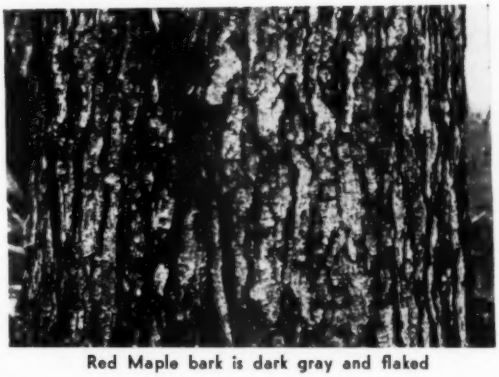
The small but conspicuous clusters of ruby red flowers open in March or April considerably before the leaves. They occur as distinct male and female blossoms and may be on the same tree or segregated on different trees. By spring or early summer the fertile pistillate blossoms have developed into the characteristic key.

Ruby colored staminate blossoms and the three to five lobed leaves which appear later

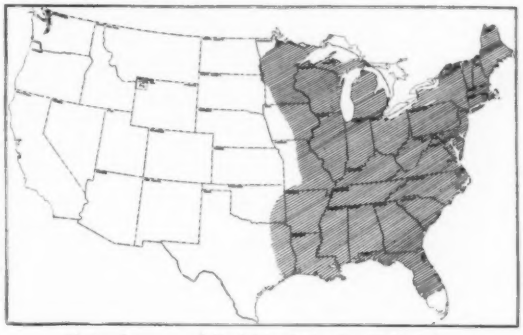
Photographs by George J. Baetzhold

Red maple wood resembles that of hard maple, but the heartwood is light brown tinged with red while the sapwood is lighter colored. It is hard, close grained, easily worked and weighs when air dry about thirty-eight pounds to the cubic foot. It is used for furniture and cabinet work, flooring, interior finish, veneers, gun stocks, and woodenware, while considerable quantities are burned in kilns to produce wood acetate and charcoal. The commercial production is not distinguished from the other maples, of which red maple holds second place to the sugar maple.

Clusters of newly formed maple keys



Red Maple bark is dark gray and flaked



Natural range of Red Maple in the United States

# ALONG THE TRAIL

## CHERRY TREES AND JAPAN

Recently, a great eastern newspaper in discussing Japan's invaluable trees, awarded first honors to the mulberry for its influence upon Western civilization through silk, and to the bamboo fishing pole, which makes philosophers of men, opens the poor man's pantry and prevents mutiny on the bounty of nature.

The cherry tree received scant notice. In viewing Japan's cherry blossoms the first thought is "a tree should be judged by its fruit", and the Japan cherry tree bears none. But it does bear fruit. Its blossoms represent the very soul of Japan. Love of nature, next to loyalty, is the greatest invisible force in the Empire. There, to girdle a tree and burn it at the stake, starts a riot.

Spiritual fruit is not all that it yields. For centuries, from its body have come blocks used to make millions of popular prints, sent forth as merry messengers or Cinderellas, scorned by sob-sisters of kindred arts, to deeply influence the arts of the Western world. Prints, comic cuts and scrolls also echo Japan's joy and laughter in foreign lands.

The bark of the cherry tree serves to bind the wounds and beautify millions of wooden objects of art, which, if not alive, at least breathe the spirit of a nation.

A realist may wonder why Japanese perpetually write poems and base much of their literature upon so fragile a flower and may regard it as effeminate. So it is, for the cherry blossom symbolizes and entherealizes love of the beautiful. Millions of girls bear its name and from babyhood up, on some inner or outer garment. On the silken petals of every bride there is somewhere a cherry blossom as a hall-mark or stamp of divinity. Ridicule this, if you must, but it is like ripping a child's doll, questioning Santa Claus, placing a dollar mark on mother love or an income tax on the goodness of God.

In Japan's gift of cherry trees to the United States we found a common language —a touch of nature to make us kin, and in it a suggestion that international relations should not be based solely upon bread and butter.—*Lindsay Russell, Wilmington, North Carolina.*

## THE SACRED BUFFALO STONE

From the time the first ripple of European civilization touched the shores of America, the Indian has been unable to tell the white man who the people were that made the flint arrowheads. Neither from memory nor by folk-tale can they explain them. They and their ancestors used bone. Nor is it possible by the same means to fathom the mystery of the sacred buffalo stone, where, from its elevated position above the Milk River project headworks of the Saco-Hinsdale section of Montana, it has watched history in the making, from the receding of the glaciers down to the time when man-made fulcrums lifted it from its age-long bedground and it was removed to the Malta city park.

Science explains why it was there. Science explains how it came to be fashioned like a wounded buffalo, in a recumbent position, with neck stretched along the ground. But no man knows what human hands increased that likeness by crudely carving horns, ribs, eyes, ears, nose, and mouth. The jaws of a mighty glacier sheared it from some red granite cliff far to the north in Canada and left it on a mesa just east of the Nelson Reservoir some 50,000 years ago. The crunching and grinding of those same jaws, during the process of transportation, formed its buffalo semblance, but just when the carving was done is beyond human ken.

Ruts made by the trailing travois, pintopony drawn and still plainly discernible, lead to it from the north and vanish in the south.

The Sacred Buffalo Stone

Were these ruts made by Indians come to worship? Was this stone some sacrificial altar whereon offerings were made to the gods before the buffalo hunt? No one knows.

Gravel crunches and stones rattle as the band arrives at the river. Squaws pitch the tepees and prepare the evening meal, while the hunters replenish their supply of kinnikinic from the inner willow bark.

As the hunting moon glides silently from the distant prairie rim, the Indians climb the heights to the sacred stone. Buffalo-chip fires are built. Medicine-men begin their incantations, as they toss their wampum offerings into the cup-like indenture on the sacred hump. To the tum tum-tum, tum tum-tum of the resonant deer-skin drum, the braves join hands, and keeping step with its weird cadence, circle the stone to the left, while the squaws form an outer circle, chanting the Indian hunting song.

A skulking wolf watches intently from a distant hill. But the shuffling pad of moccasined feet, the weird tempo of the drum, and the wailing chant of the swaying squaws continue as the medicine-men implore their gods to make the morrow's hunt yield much meat and many hides.

Has this stone buffalo watched such sacred rites by Sioux or Assiniboine, Cree or Crow or Mandan, for thousands of years? Who knows?

Today, the buffalo has stampeded beyond the horizon and the Indian is rapidly approaching its edge. The elements are gradually filling the travois ruts and Cree Crossing is spanned by a low, solid concrete planking. The travois ruts have widened into an motor trail. It crosses dams and dikes and ditches, and zigzags between alfalfa and wheat and beet fields, and finally joins its younger, sleek-coated brother — Roosevelt Highway No. 2.

And the sacred buffalo stone? When the elevators and beet dumps and seed houses are silhouetted against the rising moon, one can imagine the shades of departed braves gathered in the city park as they shuffle to the tum tum-tum of ghostly drums.—*Seth H. Dibble, in "The Reclamation Era."*

## HAWAII BATTLES FOR TREES

Visitors to the American territory of Hawaii who exclaim in delight over the lush tropical foliage little realize that an unending battle is going on to find trees, which despite adverse soil conditions, will grow on the watersheds. These watersheds are all-important to the islands.

The climate along the watersheds is ideal for plant growth; the soil in many cases is the reverse.

Young Hawaiian lavas make a suitable foundation on which indigenous plants will grow luxuriantly, provided they receive sufficient moisture. But when those same lavas decay into finely divided materials a problem is presented. The old soils often contain, as products of decomposition, elements which are poisonous to the native plants, and when plants are found growing on such soil they are usually delicate and readily killed by the slightest adverse condition.

"The creation of new forests to replace our disappearing native forests is one of the most vital problems confronting this part of the United States," points out Dr. Harold L. Lyons, of the Hawaiian Sugar Planters' Association, an organization expending nearly half a million dollars yearly in agricultural research.

"The only practical method of procedure is to determine by continual experiments the various species of trees, shrubs and other plants that will grow in the decomposed lava soil along the watersheds."

Planting trees in isolated sections of the islands is very difficult, owing to the jagged, wild terrain. But this problem has been solved and in its solving has come about one of the spectacular sections of the work.

Seven years ago cooperation of the United States Army Air Corps stationed near Honolulu was secured. Hundreds of pounds of tree seeds were taken aloft in big planes and the upper reaches of the watersheds "bombed" with the potential forests. These flights were repeated on several of the islands. Six years later members of the CCC engaged in cutting trails discovered new forests springing up. A checkback on the "bombing" maps showed that the new forests were springing up as a result of the seed "bombs."

Thousands of young, vigorous trees—the New Zealand karaka and the sandalwood—are growing on what were but recently denuded slopes. While the karaka appears to be a partial answer to the watershed coverage problem, the sandalwood gives a double promise—watershed coverage and a future article of commerce.—*William Atherton DuPuy, Washington, D. C.*

The International T-40 TracTracTor operating a scraper having a capacity of 4½ yards struck measure and 6 yards heaped.

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# READERS' FORUM

## MORE ON FOREST EDUCATION

SIR: The article "Where Are We in Forest Education," by W. C. McCormick, in the March issue of AMERICAN FORESTS, gives me a hunch to write my views, which are sincere and tempered with twenty years' experience in forest fire control work in West Virginia. Here they are:

Continue to elect conservation-minded officials to every office in our government, from top to bottom. Compulsory conservation education in every school in every state, beginning with the first grade.

Organize live-wire, two-fisted G-men county rangers working hand in hand with county agents. Supply a fast plane and pilot to the chief fire warden of each state for use on district inspection trips and to direct and supply necessities for effective control operations on bad fires.

A fire tower on each 100,000 acres, a ranger on each 25,000 acres, and a resident fire warden on each 5,000 acres, assisted and supervised by a G-man county ranger who in turn is assisted and supervised by a professional district forester, who in turn is assisted and supervised by a professional state forester, ex-officio chief fire warden.

Make incendiarism a federal offense and, on conviction deport burners to Alcatraz prison. Employ only honest citizens to fight fire, with prompt and adequate pay, and we will have in the United States a conservation-minded people.—*E. N. Wriston*, Kingston, West Virginia.

## NATURAL RESOURCES AND LIBERTIES

The loss of the great tulip tree in Kentucky is distressing, not because one tree makes much difference but because it shows the utter indifference of the Kentucky people to conservation. It again puts me in mind of a conversation I had with the late Professor Richard T. Fisher in the Harvard Forestry School nearly thirty years ago. I have quite often quoted it in public addresses.

One of the students had asked Professor Fisher whether in his opinion Massachusetts forests would be in a better condition in a hundred years and if such weedy growth as gray birch would have been cut out to allow the best timber to develop. Dr. Fisher said that either the forests would be in better condition or there would be no United States of America. He then went on to state that he didn't mean by this that the loss of trees would destroy the country, for lumber could undoubtedly be had elsewhere, but that any people which neglected to conserve its natural resources would undoubtedly neglect to preserve its liberties and therefore would fall either to foreign enemies or to domestic tyrants. This was nearly thirty years ago. I have thought about it a great deal in recent years with the increasing tendency towards dictatorship in this country.—*John C. Wister*, Philadelphia, Pennsylvania.

## HOW LARGE IS EL TULE?

Discussion continues regarding the measurements of El Tule, the famous bald cypress of Mexico, described in AMERICAN FORESTS for January, 1936 (Trees of Old Mexico, by Mrs. Cunningham Terry). The circumference of the tree was given at that time as 108 feet. Other measurements reported include up to approximately 150 feet, the circumference quoted by Standley in "Trees and Shrubs of Mexico." Therefore, the following letter is of unusual interest.

SIR: I measured the circumference of El Tule at five feet from the ground on October 4, 1936. I found the circumference to be 113 feet and four inches. The diameter at the same height I calculated to be thirty-six feet, one inch. The height I measured through triangulation and am quite sure that it is within a few inches of the height of the tree above the ground to the topmost branch. I found it to be 118 feet, seven inches.

Undoubtedly some of the difference in measurements reported is due to the height of the trunk at which the circumference is made and also to the fact that the trunk is very deeply lobed with large recesses. I did not attempt to go into the measurements of these recesses but simply took the outside measurements.

I noted in the guide books and descriptions of El Tule at Mexico City great discrepancies in the measurements both of the circumference of the tree and its height. It was for this reason that I took particular pains to make sure that my measurements were as accurate as possible under the circumstances. Of course the circumference varies somewhat at each height, but not enough to account for the 51.8 meters, or approximately 150 feet, quoted by Standley. As regards the Reys measurements of 108 feet circumference, this could easily be accounted for, depending upon the height at which the measurements were made.—*A. D. Shamel*, Bureau of Plant Industry, Riverside, California.

## WATER AND THE FARM

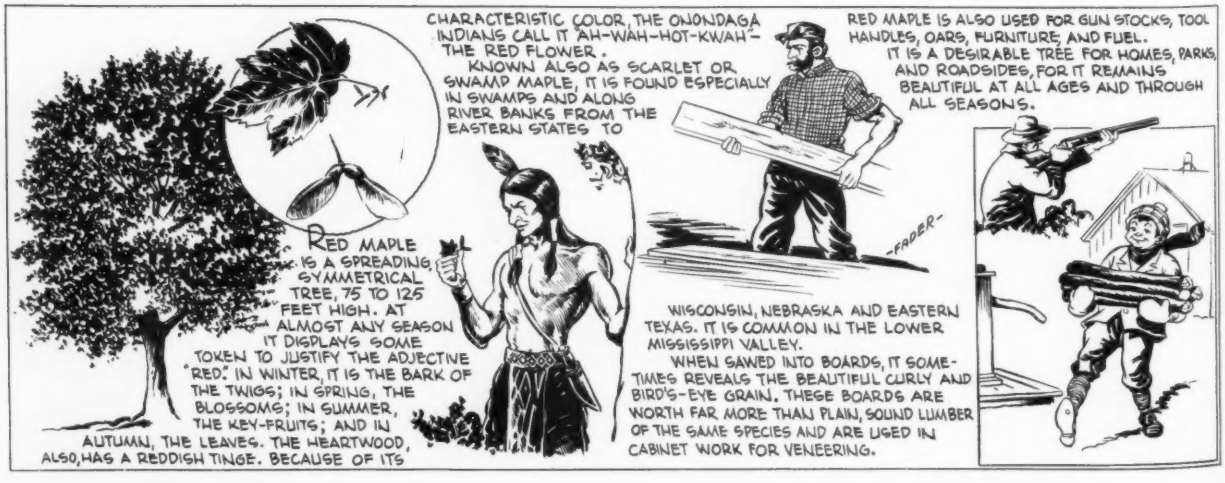
SIR: I would like to comment on the fundamental causes of destructive river floods, just after the Ohio River has put the United States in the same intellectual classification as that of China. Our "New Deal" government is about to commit one crime to make right another crime known as share crop farming. It is planning to supplant share cropping tenantry with a farm owning population, thereby clamping all the attendant evils of such ownership on these areas for generations to come. These evils are that destructive river floods have their very beginning in the tilled fields of the owner-farmer, that fence row burning, weed seed growing, trespassing and destruction on near-by forest growth will continue as in the past.

If the lawmaking gentry who sit in Washington while making laws on farming, forestry and flood control would go out into the fields under the hot sun and work under the laws they enact, just as the farmers and forest workers must do under those laws, they would sneak back to Washington and make those laws over.

The farmer-owner will never make adequate provision for water storage on the edge of his tilled fields, or ditch-irrigated woodlands adjacent to them to feed water into the sub-strata.

Land ownership or use can be made conditional with proper use and care by the farmer, border areas of all tilled fields can be put under the care of government forestry employees. We will then have flood water retained to feed the field crops and the subsoil, and ditch-irrigated woodlands practically proof against fire.—*Herbert I. Washburn*, Magnolia, New Jersey.

## TREES AND THEIR USES—No. 24—RED MAPLE


RED MAPLE IS A SPREADING, SYMMETRICAL TREE, 75 TO 125 FEET HIGH. AT ALMOST ANY SEASON IT DISPLAYS SOME TOKEN TO JUSTIFY THE ADJECTIVE "RED." IN WINTER, IT IS THE BARK OF THE TWIGS; IN SPRING, THE BLOSSOMS; IN SUMMER, THE KEY-FRUITS; AND IN AUTUMN, THE LEAVES. THE HEARTWOOD, ALSO, HAS A REDDISH TINGE. BECAUSE OF ITS
CHARACTERISTIC COLOR, THE ONONDAGA INDIANS CALL IT "AH-WAH-HOT-KWAH"—THE RED FLOWER.
KNOWN ALSO AS SCARLET OR SWAMP MAPLE, IT IS FOUND ESPECIALLY IN SWAMPS AND ALONG RIVER BANKS FROM THE EASTERN STATES TO WISCONSIN, NEBRASKA AND EASTERN TEXAS. IT IS COMMON IN THE LOWER MISSISSIPPI VALLEY.
WHEN SAWED INTO BOARDS, IT SOMETIMES REVEALS THE BEAUTIFUL CURLY AND BIRD'S-EYE GRAIN. THESE BOARDS ARE WORTH FAR MORE THAN PLAIN, SOUND LUMBER OF THE SAME SPECIES AND ARE USED IN CABINET WORK FOR VENEERING.
RED MAPLE IS ALSO USED FOR GUN STOCKS, TOOL HANDLES, OARS, FURNITURE, AND FUEL.
IT IS A DESIRABLE TREE FOR HOMES, PARKS, AND ROADSIDES, FOR IT REMAINS BEAUTIFUL AT ALL AGES AND THROUGH ALL SEASONS.
-FADER-

# FIRE PROTECTION IN REGION 5

ONE of 15 "Caterpillar" Diesel RD8 Tractors purchased by the Forest Service for use in Region 5, this machine is pictured building a fire patrol road in the San Bernardino National Forest.

Note the heavy-duty rooter that the powerful Diesel is pulling. Thanks to the weight and big power of this tractor, the rooter can tear up very heavy formation that would otherwise require explosives. This means a great saving in costs for this type of work. Add to that the economy of fuel consumption—less than 2⅓ gallons per hour for this heavy job—and you'll understand why hundreds of "Caterpillar" Diesel Tractors are at work in the nation's forests today.

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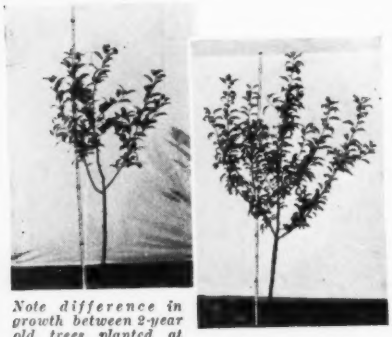

*Note difference in growth between 2-year old trees planted at same time with and without peat moss.*

## Healthier Growth for Deciduous Trees

WHEREVER nurserymen or orchardists have added Emblem-Protected Peat Moss to the soil before planting trees, it has proved to be the best result insurance known.

Reporting on a series of tests at a well-known agricultural experiment station, *American Nurseryman*, in a recent issue, states:

"One test was shown in which wet, granulated peat moss had been placed about the roots of apple trees in the hole at planting and the trees firmly planted into place. A 12-quart pail of peat moss was used to each tree. Trees so planted made a terminal growth of eighty-eight inches per tree, as compared with twenty-seven inches per tree from those not so treated. Furthermore, the growth the second year continued to be superior. The demonstration was quite striking, and the growth of the peat-treated trees quite superior."

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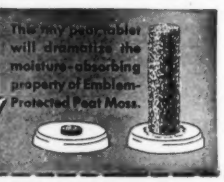


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# TRAIL RIDERS TO EXPLORE TRUE WILDERNESS AREAS

## Seven Expeditions Under the Direction of The American Forestry Association Will Visit This Summer Last Remnants of Primitive America

If you would ride with one or more of the expeditions of the Trail Riders of the Wilderness this summer, set your sights for the real thing. For the land to be explored by the seven parties now being organized by The American Forestry Association is a true wilderness—a land as untamed as the deer and the bear that roam it. Six different areas will be explored—six treasured remnants of the vast wilderness that was once America.

From the hidden virgin groves of tulip trees in the misty vastness of the Great Smoky Mountains, in North Carolina and Tennessee, to the wild grandeur of the jumbled sea of mountains and valleys that spreads out from Mount Olympus, in the State of Washington, the Trail Riders will make their way, pausing beside unnamed lakes, staking their camps in flowered valleys or beneath unconquered peaks, sleeping on ground, perhaps, that white man has never touched before.

The trail is not unbroken from east to west, of course. There are great stretches where civilization has built its empire. But the places where Nature is still supreme, veritable kingdoms of from 500,000 to 1,000,000 acres, rim the continent in age-old grandeur. Each kingdom has tradition, beauty, power to create and restore. Yet each is as individual, as distinctive and as different in its effect on the personality that is Man as the four seasons of the year. Only in the fact that they are remnants of a once unbroken wilderness are they alike.

There is, for example, that magnificent empire of trees and lakes and peaks and ridges that saddles the continental divide along the Flathead River on the west and the Sun River on the east in Montana's greatest remnant of the primitive. The Trail Riders will explore this wilderness from July 3 to 15. How different it is from the misty Great Smokies in the East, to be explored first from June 15 to 27, and again from September 15 to 27. In the Great Smokies the forest is dense, a mixture of magnificent hardwoods and conifers, ablaze in the spring with the bloom of azalea and rhododendron and tulip trees, glorified in the fall by the splendor of color—always misty, always superb. Montana's Flathead and Sun River wilderness deals in horizons, space and rugged spectacles. The peaks and ridges of the continental divide rise in huge escarpments, the bulky summits of the Shining Mountains look down on beautiful lakes in rocky basins formed by ancient glaciers, and green-mantled slopes give way to valleys of bear grass and other strange and beautiful wild flowers.

Different still is the Wind River Wilderness in Wyoming, which the Trail Riders will explore from July 18 to 31. Here is where the Rocky Mountains fling up a rugged crest to form what is perhaps the most dramatic wilderness remaining in continental United States. High country, all of it, with elevations mounting to 13,700 feet—a kingdom of timberline trees, broken rock, ice and solitude. What color! Purples, and blues and reds and yellows in all the delicate shades of a pastel. And purple daisies and other flowers to match each mood of mountain and sky. But the full glory of the top of Wyoming is found in its unique ice fields—a land of many glaciers.

Not far away as the eagle flies is another kingdom of mountains and pines and silver lakes—the great Sawtooth Mountain region of Idaho. When the Trail Riders visit this wilderness from August 4 to 17 they will find one of the most picturesque lands under the sun. Goat country, it was once called, because of the great number of mountain goats finding refuge there. They may be found yet, for the Sawtooth country is still a wild paradise. Its mountains are big and rugged and high and well forested, but inviting to the explorer who seeks their beauty afoot or with a good saddle under him. It is a country of breadth and color, of boldness and charm.

Far to the south, so close to Mexico that the Spanish influence still prevails, lies 600,000 acres of timber and grassland, of lonely trails, of black winding canyons, of buttes and mountains that reflect astonishing colors in the sun. It is the storied wilderness of the Gila, the river of mystery, of Pueblo myths. It is the wilderness the Trail Riders will explore from August 3 to 16.

In the deeper regions of the wilderness the riders will find cliff dwellings that intrigue the imagination—dwellings of the American aborigines that lie undisturbed amid primitive and natural surroundings. But the real glory of the Gila is in its canyons, as colorful as the Grand Canyon of the Colorado, though in miniature, as wild as the antelope that poise on their rims or the eagles that nest in their fantastic pinnacles.

Two thousand miles away, across burning deserts and timbered empires, surrounded on three sides by salt water lies the great wilderness of the Olympic Mountains, in the State of Washington. This is a story-book land—a broken mass of peaks that rise in majestic beauty over a hinterland of virgin forests—a wildwood built on a grand scale. Here the Trail Riders of the Wilderness will ride from August 20 to September 1—thirteen days in perhaps the most beautiful of the last primitive places. Although seldom exceeding 8,000 feet in elevation, the bold peaks of the Olympics rise abruptly from sea level, enhancing their massiveness and mystery. Few areas are richer in grandeur, in animal life, in vegetation and forest growth. It is the native home of the great Roosevelt elk, one of the most interesting species of American wildlife.

Wildernesses all, America's last frontier, where trails are the only highways and the sun and moon your guide. With the exception of the Trail Riders of the Wilderness few have enjoyed their beauty and vastness, except, of course, rangers and forest officers responsible for their protection. The reason is that there has been no one to guide, no one to organize and direct the way. This The American Forestry Association does for the Trail Riders, will do for those who will become Trail Riders—perhaps for you. Write for further information—just address The American Forestry Association, 919 17th Street Northwest, Washington, D. C.

# FROM PEAS TO TREES

**COVERING 14 states, region No. 7 of the United States Forest Service, containing seven National Forests, uses Cletracs throughout this vast area for fire protection development, road and trail building, planting and improvement of recreation areas.**

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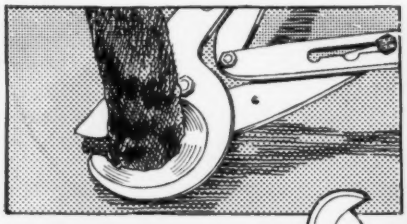

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ATLANTIC CITY

# SCIENCE AND EQUIPMENT

## SEED TESTER

A mammoth drumlike contraption is working sixty minutes an hour, twenty-four hours a day at the University of Minnesota farm school to help farmers of the Northwest fight the drought. Perfected by Dr. Hardy L. Shirley, of the United States Forest Experiment Station, the apparatus is a tester for grains and tree seedlings.

Plants to be tested for their resistance to drought are placed on a revolving table within the great drum. Heat is turned to the degree desired through an electric heater in which the temperature is controlled to one-tenth of a degree.

Humidity is kept constant through a bed of calcium chloride over which the air passes. A fan at the top and speed at which the table revolves gives the desired wind velocity. Light intensity is controlled through the height and size of the huge electric bulbs over the plants.

The drum works constantly in weather manufactured to meet exact conditions scientists want to study. This makes it possible to make tests in days, whereas otherwise it would take years.

## ICE FOR FIRE

According to *Time Magazine:* "'If we could get fifty gallons of water to a forest fire immediately after we spot it from a watch tower, that would be much more effective than tons of water after the fire has had a two- or three-hour start.'

"This thought occurred to Acting Supervisor A. B. Everts, of the Cleveland National Forest, in southern California. But fifty gallons of water weigh 416 pounds. Hauling that much weight, plus a pump and its power unit, over a mountain trail is slow work. Gasoline pumps are convenient but heavy. Forester Everts hit upon a source of power that is light and cheap as well as convenient. He tried frozen carbon dioxide, 'dry ice.'

"Dry ice does not melt to a liquid but sublimes directly from the solid state to vapor. When this takes place under confinement, the vapor is formed at high pressure. Everts and two associates designed a power unit consisting of two small tanks containing twenty-five pounds each of dry ice. Sublimed, this delivers a pressure of 1,000 pounds a square inch, which is stepped down by control valves to 250 pounds before being applied to the water hose. Recently Forester Everts successfully tested an experimental model and returned it to the shop to iron out minor kinks. Before next summer he expects to have several full-size units on duty in the woods. Dry ice costs only four cents a pound and one filling provides enough power to empty the water tank ten times."

## FISH PROPAGATION

A contribution to the science of fish culture has been made by the Fisheries Division of the Wisconsin Conservation Department. It is the discovery and development of methods permitting the artificial propagation of nesting fishes, including sunfish, bluegills, crappies and rock bass.

Up to this time, fish culturists were agreed that it was impossible to take eggs from nesting species to be hatched by hatchery methods. Wisconsin has now proved the feasibility of artificial propagation by hatching ninety per cent of the eggs taken from nesting fishes.

In the past, propagation of these species has been stimulated only by provision of adequate nesting areas in protected ponds, the method being to provide the fish with natural conditions as nearly ideal as possible, under which they might make their nests and hatch their eggs. But even under the most ideal normal conditions the percentage of hatch was small as compared with hatchery production.

The successful culmination of Wisconsin's experiment opens the way toward great increase in the population of these small game fish, all of which are highly prized as food fishes and which, in addition, provide excellent sport for flyrod fishermen as well as to thousands of other fishermen, young and old, who fish with the traditional cane pole and fishworm.

## POWER FIRE LINE SAW

Forest Service headquarters at Missoula, Montana, reports experiments with power-operated saws for use on fire lines. Progress has been made in developing a saw weighing eighty-five pounds with a forty-eight inch chain blade. The need for a light weight saw, to be used on fire lines, where speed in surrounding a fire is the first pre-essential in reducing fire losses, is recognized by all fire fighting crews..

## WOODEN FIRE TOWER

The fire lookout who scans the lonely expanse of pine forest from Fraser Point, Oregon, next summer will do so from the dizzy level of a 100-foot wooden tower which is the pride of its recent CCC builders. The tower represents the latest thing in wood construction using the split ring device recently found effective in increasing structural strength of wood.

Located on the Malheur National Forest, the tower is built of treated Douglas fir, illustrating the use of wood in a competitive field requiring strength and economy. Fraser Point lookout is in one of the world's largest belts of ponderosa pine timber.

# PLUS

## THESE MONEY-SAVING ALLIS-CHALMERS ADVANTAGES

Tractor users are finding that fuel economy ALONE is not enough! In the Controlled Ignition Oil Tractor ... Allis-Chalmers has COMBINED Diesel fuel economy with smooth, dependable operation ... instant starting, regardless of weather ... greater simplicity ... less dead weight ... and better balance. Controlled Ignition eliminates the need for high compression pressures—thereby avoiding vibration, crankshaft whip, terrific heat, excessive wear and strain on working parts—and expensive repairs. No special grades of fuel are necessary ... special lubricating oil is not required ... and there is no auxiliary starting motor. Investigate this improved principle of tractor operation!

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**Most Ta-pat-co Sleeping Bags have special provision for Ta-pat-co Air Camp Mattress. (Bag and mattress roll up together.) Mattresses are from $8 to $16.**
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## TOURIST INFORMATION BUREAU

A tourist information bureau has been established in New York City by the National Park Service to coordinate efforts of the Federal Government and of the forty-eight states in public education concerning scenic, health, historical, and recreational opportunities of their respective areas.

Staffed by WPA personnel, the information office is located in the Courts Building. Nelson A. Loomis, associate recreational planner, is in charge.

Secretary of the Interior Harold L. Ickes approved establishment of the bureau because of the lack of a central distributing bureau for federal and state recreational literature. He believes that the Department of the Interior can thus make a substantial contribution to the nation's business by stimulating tourist travel between the states and distributing travel literature abroad.

The bureau, which will act as distributing headquarters for all literature, maps, and motion pictures prepared by state publicity bureaus, the National Park Service, and other Federal Departments, will cooperate with transportation companies and travel agencies to increase travel and improve travel facilities.

## TRAILER CAMPING IN PALISADES

Due to the increasing number of trailer campers in the New Jersey Division of the Palisades Interstate Park, plans for opening a section of the Ross Camp Colony in addition to Camp Palisades are now under way, according to Major D. W. Colhoun, superintendent of the Division.

Camp Palisades, which accommodates seventy trailers, is located on top of the cliffs above the Englewood ferry landing, on Palisades Avenue near Route 9-W, the north-south thoroughfare on the west side of the Hudson. Ross Camp Colony is situated on the shore of the Hudson River on the old Ross Dock.

Major Colhoun said the camps will be accessible to travelers when a road connecting with the southern extension of the Henry Hudson Drive is completed.

He stated that many professional and business men and their families are taking advantage of trailer camping.

## PARK-TO-PARK NATIONAL HIGHWAY

The proposed Everglades National Park, in Florida, will form the southern objective of a master highway system which will link all National Parks, Monuments, and historical sites, if a plan now under consideration by the Federal Government is put into effect, according to Ernest F. Coe, chairman of the Everglades National Park Association.

This Park-to-Park National Highway will include in its eastern system a segment reaching from Maine to the Everglades National Park. Reaching Florida it will swing down through the center of the State through the Ocala National Forest, around the eastern side of Lake Okeechobee and at its southern end will intersect State Road No. 26, thence to the Park.

Links of the major highway system have been established through the Shenandoah and Great Smoky Mountains National Parks and intervening National Forests.

## OLD EMIGRANT TRAIL

The old emigrant trail to Nevada, used by trappers, Indians and the forty-niners on their way over desert and through mountains en route to California gold fields, has been turned into a passable road by the Civilian Conservation Corps, providing an alternate route between Delta, Utah, and Ely, Nevada.

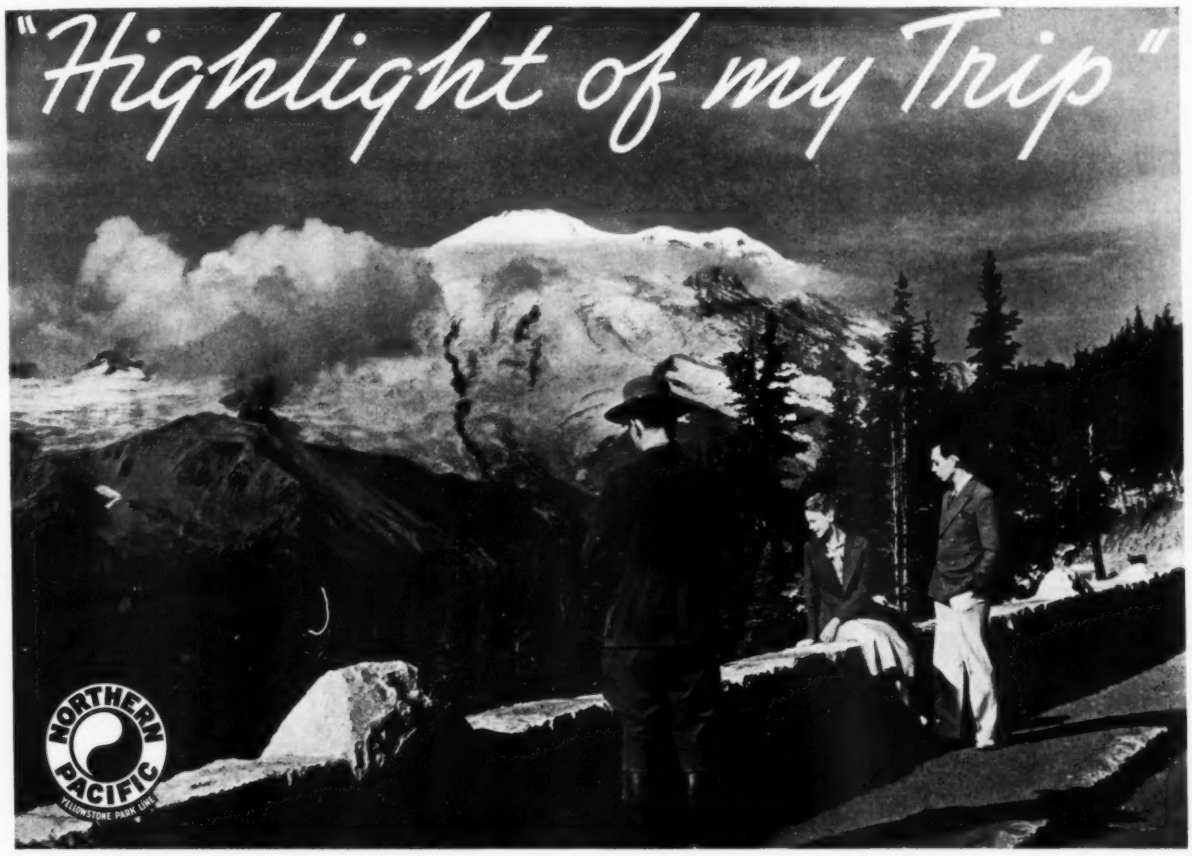
Markings in caves along the road date back to 1840. After the gold-rush days passed their peak, the route became a sheep and cattle trail used by settlers from eastern Nevada. Along the road south of Antelope, stand two Lombardy poplar trees, which mark the site of the water hole filled by water trickling down from the main Antelope Spring, a mile above. Here sheep outfits stopped for water. The remains of an old storehouse and corral can still be seen. The storehouse served as hotel and saloon as well as store, for the water made its site a desert stopping place for both westward and eastward bound sheep herds.

## TO STUDY RECREATIONAL NEEDS

Secretary of the Interior Harold L. Ickes has announced the launching by the National Park Service of a nation-wide study in cooperation with state and local authorities to determine the recreational needs of the people and inventory existing and potential park and recreation areas as a basis for immediate and long-term planning.

The study, the Secretary said, is the most far-reaching of its kind ever attempted in the United States, and is an outgrowth of Emergency Conservation Work cooperation between the Federal Government and the states through which hundreds of state park and recreation areas have been extended and developed by the Civilian Conservation Corps since 1933.

Using emergency funds, the National Park Service has set up under its Branch of Recreational Planning and State Cooperation a basic organization for initiating the study, which may require a year to complete in some states. The undertaking is divided mainly into a survey involving the collection and recording of data, and an analysis of these data.




# YAKIMA DETOUR *to Rainier National Park*

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# AROUND THE STATES

## ELM DISEASE CAN BE CONTROLLED

The Dutch elm disease can be eradicated from the United States, is the opinion expressed by state and federal authorities who attended the National Conference on Dutch Elm Disease in Washington, D. C., on March 4. The optimism, however, is predicated on the assumption that adequate money and facilities will be provided to do the necessary work. Unless eradication is achieved, Lee Strong, chief of the Bureau of Entomology and Plant Quarantine, said the disease may be expected to spread from state to state. This country, continued Mr. Strong, is doing more toward eradication of the Dutch elm disease than any of the countries of Europe —but, at that it is not enough.

Since starting the campaign to eradicate the elm disease, 21,897 elm trees have been clearly diagnosed as having the disease, all of which have been removed and destroyed. Three-fourths of these were in New Jersey, 6,000 in New York, 235 in Connecticut, and scattering specimens totalling seventy-eight were in Maryland, Ohio, Indiana and Virginia. In order to reduce the possibility of spread beyond the present limited region around New York City, over 2,000,000 trees have been removed, including all wild elms on several thousand acres. During the year beginning last July the work has been financed with more than $4,000,000 of emergency funds supplemented by a regular appropriation of $261,156.

With the allotment of an additional $566,000 on February 27, continuance of the eradication work is assured for March and April, but on the basis of about 2,900 men taken largely from relief rolls, rather than the high point of over 6,000 men established last fall.

William P. Wharton, of Groton, Massachusetts, was re-elected chairman of the National Conference on Dutch Elm Disease; Mrs. Robert C. Wright, chairman of Conservation for the Garden Clubs of America, and Russell T. Edwards, American Tree Association, vice-chairmen; and G. H. Collingwood, of The American Forestry Association, secretary. Other vice-chairmen will be named from national organizations cooperating in the campaign to save the elms of America.

The Conference declared by resolution that $3,000,000 should be appropriated for continuing the campaign to eradicate the disease, and this should be supplemented by additional allotments from emergency funds. A tentative work plan on the basis of financial estimates for the next five years was requested, and opposition was voiced to the proposal of the Bureau of the Budget that federal funds should be matched by appropriations from state or private sources.

## DR. WILLIAM T. HORNADAY DIES

Dr. William T. Hornaday, who retired as the first director of the New York Zoological Park in 1926 after thirty years' service and who since had devoted himself to the protection of wildlife, largely through his writings and efforts as head of the Permanent Wildlife Protection Fund, died at Stamford, Connecticut, on March 6. His age was eighty-two.

Perhaps the most active and, at times, most acrimonious of American wildlife conservationists, Dr. Hornaday had spent practically a lifetime fighting against the extinction of the birds and beasts of the North American Continent. A native of Indiana, he started out to be a farmer, attending the Iowa Agricultural College. Later, however, he studied to be a scientific taxidermist. From this he became a scientist, and from science he emerged into the propagandist for the cause to which he devoted nearly all his life.

Following studies at Ward's Natural Science Establishment in Rochester, New York, he set forth on his first collecting expedition, going to the Bahama Islands, Cuba and Florida. Later he visited the West Indies and South America. His most extensive expedition took him to the jungles of Ceylon, the Malayan Peninsula and Borneo.

Dr. Hornaday founded the National Society of American Taxidermists in 1880, and in 1882 was named chief taxidermist of the United States National Museum. In 1896 he was appointed director of the New York Zoological Gardens.

## CONSERVATION FOR MISSOURI

Governor Lloyd C. Stark, of Missouri, plans to appoint a non-partisan conservation commission consisting of four unsalaried members under authority of Constitutional Amendment Number 4, adopted at the last regular election. A director of conservation will be appointed by the commission, who in turn may appoint such assistants and other employees as the commission shall deem necessary.

J. N. DARLING
Named Permanent Wildlife Head

The commission will control, manage, restore, conserve, and regulate the bird, fish, game, forestry and wildlife resources of the State, administer all laws pertaining thereto, and acquire necessary land.

The initial appointments, which are to be effetive on July 1, provide for the appointment of one commissioner for two years, two for four years, and one for six years. Thereafter the appointments will continue for six years. Not more than two members of the commission may be members of the same political party.

Creation of this commission with the appointment of a director of conservation will place the State of Missouri, with a forest area of nearly 15,750,000 acres, in a position to establish a forest protection program and share in the federal allotment of Clarke-McNary funds. No such cooperation has existed for the past several years.

## NEW FIRE PROJECT LAUNCHED

To bring the newest scientific developments into forest fire control in the National Forests, and to coordinate the results of the past thirty years of experience, a special fire control planning project is being launched by the United States Forest Service. L. G. Hornby, at present in charge of the Division of Silvics at the Northern Rocky Mountain Forest Experiment Station, Missoula, Montana, will be in charge.

Mr. Hornby will maintain headquarters at Missoula, but will devote his attention to all National Forest regions. His duties will include examination of fire control methods used, or planned for use, suggestion of new methods, and analysis of each region's fire problems.

In stressing the importance of the new field of work, Roy Headley, chief of the Division of Fire Control, said: "Of the $12,000,000 expended annually for administration of the National Forests, thirty-seven per cent is required for their protection from fire. Without successful protection, forestry cannot restore the American heritage of timberlands nor can these lands fulfill their role in the control of floods, maintenance of water supplies and outdoor recreation. Many new and efficient techniques and equipment, notably in the field of power apparatus, radio, and aircraft, have been developed by the Forest Service.

"It will be Mr. Hornby's responsibility to see that in their final form, plans are coordinated so that appropriated funds may be allotted equitably between different areas and between the different lines of work."

## GRAND PORTAGE ROAD CONSIDERED

Arguments for and against the extension of Highway No. 61 along the shores of Lake Superior north of Grand Marais, Minnesota, around the Indian village of Grand Portage, and into Canada by way of a new crossing over the Pigeon River were presented to Secretary Harold L. Ickes during a hearing held at the Department of the Interior March 9.

Without making a final decision, Secretary Ickes expressed the opinion that the lake shore route would be longer than the present route through Mineral Center. It would necessitate expensive cuts and fills in crossing the high land back from Mt. Josephine and would open up an area which would otherwise be capable of being maintained as a wilderness. The Secretary emphasized the desirability of preserving the wilderness character of northern Minnesota and described the Quetico-Superior region, as protected under the Shipstead-Nolan Act, as one of the finest conceptions of land administration in America.

## PERMANENT WILDLIFE FEDERATION FORMED

Meeting in St. Louis, March 1-4, the Second North American Wildlife Conference, held under the sponsorship of the American Wildlife Institute, was the occasion for the permanent organization of a General Wildlife Federation, designed to amalgamate all groups throughout the country interested in the protection and restoration of wildlife. The Federation had its inception in Washington in February, 1936, at which time J. N. (Ding) Darling, noted cartoonist and former chief of the Biological Survey, was elected to temporary leadership.

At the St. Louis meeting, Mr. Darling was elected permanent president by acclamation. Other permanent officers elected were: Vice-Presidents, David Aylward, Peabody, Massachusetts, state game and fish commissioner of Massachusetts; W. L. Finley, Portland, Oregon, naturalist and author; and Dr. W. B. Jones, Montgomery, Alabama, geologist. Directors, Charles Giaque, Edgerton, Ohio, William J. Aberg, Madison, Wisconsin, Justus H. Cline, Stewartsdraft, Virginia, Mrs. H. G. Bogert, Akron, Colorado, George Grebe, Kuna, Idaho, Judge Lee Miles, Little Rock, Arkansas. Regional Directors, John L. Curran, Providence, Rhode Island, Colin Reed, Washington, D. C., C. P. de la Bare, Blacksburg, Virginia, Dr. W. B. Jones, Montgomery, Alabama, Edward K. Love, St. Louis, Missouri, Louis Dunton, Fort Wayne, Indiana, Bella L. Foresman, Lansing, Michigan, W. J. Tucker, Austin, Texas, Harold Thomas, Des Moines, Iowa, Charles N. Fahr, Salt Lake City, Utah, W. L. Finley, Portland, Oregon, George E. Walton, Oakland, California, Charles Plummer, Cheyenne, Wyoming.

In accepting his election as permanent head of the Federation, Mr. Darling proposed a seven point program for which the organization should stand, as follows:

(1) Establishment of government responsibility for restoration and conservation of wildlife; (2) Creation of standing conservation committees in both Houses of Congress; (3) Adequate appropriations for the United States Biological Survey and the United States Bureau of Fisheries; (4) A system of cooperative wildlife research between the Federal Government and the states, and legislation earmarking the $3,500,000 spent annually by hunters and fishers for licenses to conservation purposes; (5) Complete government jurisdiction over all water resources of the United States to prevent pollution, misuse, and waste; (6) Adequate federal appropriations for wildlife research; and (7) Enforcement of all state and federal laws protecting wildlife.

A number of these objectives were formally adopted by resolution, including the earmarking for conservation purposes of ten per cent of the excise taxes on guns and ammunition. By resolution, the Federation also endorsed the Superior-Quetico project of northern Minnesota and Canada, declared that the Federal Government should give full recognition to wildlife resources in all CCC projects and favored limiting the open season on fur-bearing animals to two months. The proposal of Fred F. Jordan, the Federation's finance chairman, that the President of the United States be requested to declare by proclamation an annual "Wildlife Week" was received and adopted with applause. The purpose of this week would be to arouse interest in wildlife conservation throughout the country and to make it the occasion to raise money with which to finance the Federation's work.

One whole day of the conference was devoted to formation of the Federation. The other three days were given over to group discussions of technical and policy questions relating to wildlife.

Speakers included conservation leaders from Canada and Mexico as well as from the United States. Notable among them were Secretary of Agriculture Henry A. Wallace; Hoyes Lloyd, Superintendent of Wildlife Protection, National Parks of Canada; Senor Juan Zinser, Chief of Mexican Game Service; and Frederic C. Walcott, President of the American Wildlife Institute.


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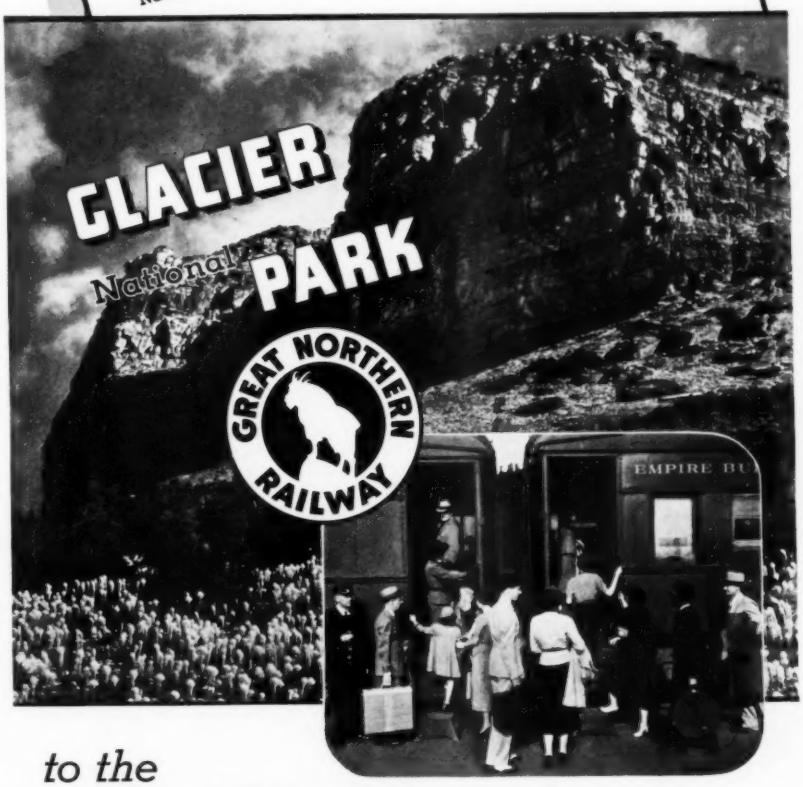


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# SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION

### TREES

| | |
|---|---|
| Manual of Trees of North America—Sargent | $ 5.00 |
| Trees of Northern States and Canada—Hough | 6.00 |
| Trees of Southeastern States—Coker and Totten | 2.00 |
| Pacific Coast Trees—McMinn and Maino | 3.50 |
| Trees of North America—The Conifers—Green | 2.00 |
| Trees of North America—The Broadleafs—Green | 3.50 |
| Northern Rocky Mountain Trees—Kirkwood | 2.50 |
| American Trees and Shrubs—Mathews | 3.50 |
| Tree Book—Rogers | 5.00 |
| Our Native Trees—Keeler | 3.00 |
| Trees in Winter—Blakeslee and Jarvis | 2.00 |
| Tree Ancestors—Berry | 3.00 |
| Tree Flowers of Forest, Park, and Street—Rogers | 7.50 |
| Some American Trees—Werthner | 5.00 |
| The Redwoods of Coast and Sierra—Shirley | 1.25 |
| Identification of Trees and Shrubs—Makins | 4.00 |
| Evergreens—Hill | 3.50 |

### GENERAL FORESTRY

| | |
|---|---|
| General Forestry—Brown | $ 3.25 |
| An Outline of General Forestry—Illick | 1.50 |
| Forest Education—Graves and Guise | 2.50 |
| Profession of Forestry—Read | 1.25 |
| Forest Physiography—Bowman | 5.00 |
| Forest Law in America—Kinney | 2.25 |

### FOREST MANAGEMENT

| | |
|---|---|
| Forest Management—Recknagel, et al | $ 3.50 |
| Theory and Practice of Silviculture—Baker | 5.00 |
| Practice of Silviculture—Hawley | 4.00 |
| Manual of Forestry—Hawley and Hawes | 3.50 |
| Forest Management—Chapman | 3.50 |
| Management of American Forests—Mathews | 5.00 |
| Applied Silviculture in the U. S. A.—Westveld | 4.00 |
| Forestry in New England—Hawley and Hawes | 3.50 |
| Farm Forestry—Ferguson | 2.00 |

### MENSURATION AND VALUATION

| | |
|---|---|
| Manual for Northern Woodsmen—Cary | $ 2.50 |
| Forest Mensuration—Chapman and Demerritt | 3.50 |
| Forest Valuation—Chapman | 3.00 |
| Forest Mensuration—Bruce and Schumaker | 3.50 |
| Forest Finance—Chapman | 3.50 |

### WOOD—ITS MANUFACTURE AND USE

| | |
|---|---|
| American Lumber Industry—Brown | $ 3.00 |
| Forest Products—Brown | 4.00 |
| Lumber, Its Manufacture and Distribution—Bryant | 4.50 |
| Logging Principles and Practices—Brown | 3.50 |
| Logging—Bryant | 4.50 |
| Logging Transportation—Brown | 4.00 |
| Lumber and Its Uses—Kellogg | 4.00 |
| Identification of Economic Woods—Record | 2.50 |
| Mechanical Properties of Wood—Garrett | 3.50 |
| Identification of Timbers—Brown and Panshin | 3.00 |
| The Properties and Uses of Wood—Koehler | 3.50 |

### PLANTING OF TREES AND FORESTS

| | |
|---|---|
| Seeding and Planting—Toumey and Korstian | $ 5.00 |
| Cultivated Conifers—Bailey | 7.50 |
| Roadsides—Bennett | 3.00 |

### FOREST PESTS

| | |
|---|---|
| Principles of Forest Entomology—Graham | $ 3.50 |
| Outline of Forest Pathology—Hubert | 6.00 |
| Insects and Diseases—Felt and Rankin | 5.00 |
| Diseases of Cultivated Trees and Plants—Massee | 4.00 |
| Forest Insects—Doane, et al | 4.50 |
| Our Enemy, the Termite—Snyder | 3.00 |

### NATIONAL FORESTS

| | |
|---|---|
| History of Forest Service—Smith | $ 3.00 |
| Our National Forests—Boerker | 2.50 |
| Rangers of the Shield—Edited by Butler | 1.50 |

### NATIONAL PARKS

| | |
|---|---|
| Book of the National Parks—Yard | $ 3.00 |
| Grand Canyon Country—Tillotson and Taylor | 2.00 |
| Let's Go to the Park—Morrison and Huff | 3.00 |
| One Hundred Years in Yosemite—Russell | 3.50 |
| Trees of Yosemite—Tresidder | 2.00 |
| Animal Life in Yellowstone—Bailey | 4.00 |

### CAMPING AND RECREATION

| | |
|---|---|
| Camp Cookery—Kephart | $ 2.50 |
| Camping and Woodcraft—Kephart | 2.50 |
| Campers' Handbook—Wallace | 2.00 |
| Handbook for Rangers and Woodsmen—Taylor | 3.00 |
| The Real Log Cabin—Aldrich | 2.50 |

### BIRDS, WILDLIFE, FISHING AND HUNTING

| | |
|---|---|
| Handbook of Birds of North America—Chapman | $ 5.00 |
| The Bird Book—Blanchen | 2.95 |
| Birds of the Pacific Coast—Eliot | 3.50 |
| Bobwhite Quail—Stoddard | 6.00 |
| Game Management—Leopold | 5.00 |
| Western Bird Guide—Reed | 1.75 |
| Field Book of Wild Birds—Mathews | 3.50 |
| American Waterfowl—Phillips and Lincoln | 4.50 |
| Bird Portraits in Color—Roberts | 3.50 |
| American Fishes—Goode | 6.00 |
| Taking Trout with a Dry Fly—Camp | 2.00 |
| The Modern Angler—Knight | 2.75 |
| Fly Dressing—Bernard | 2.50 |
| The Reptiles of North America—Ditmars | 6.75 |

### FLOWERS AND GARDENING

| | |
|---|---|
| American Wild Flowers—Mathews | $ 3.50 |
| Wild Flowers—House | 3.95 |
| Field Book of Western Wild Flowers—Armstrong | 3.50 |
| Western Flower Guide—Saunders | 3.50 |
| Hardy Californians—Rowntree | 3.50 |
| Flora of the Hawaiian Islands—Degener | 7.00 |
| Ferns of Northeastern United States—Wiley | 1.00 |
| Field Book of Common Ferns—Durand | 2.50 |
| The Mushroom Handbook—Krieger | 3.50 |

### MISCELLANEOUS

| | |
|---|---|
| American Conservation—Edited by Butler | $ 2.50 |
| Our Natural Resources—Parkins and Others | 5.00 |
| Conservation—Havemeyer and Van Hise | 5.50 |
| Our Federal Lands—Yard | 3.00 |
| Green Laurels—Peattie | 3.75 |
| Through the Woods—Bates | 3.00 |

**This list of Selected Books is a service of The American Forestry Association to its members. . . . A more complete list of recommended books is available on request. Members ordering books through the Association are entitled to a 10% discount from published prices**

# NEW BOOKS

FERNS OF NORTHEASTERN UNITED STATES, by Miss Farida A. Wiley. Published by the author. American Museum of Natural History, 77th Street and Central Park West, New York, N. Y. Price $1.00, plus fifteen cents postage.

All known species of ferns native to New England and the Middle Atlantic States are described by line drawings and brief paragraphs in the pocket size field book, "Ferns of the Northeastern United States." It offers a remarkably simple and easy method of identifying the several ferns.—G. H. C.

FIELD BOOK OF ILLINOIS WILD FLOWERS. Published by the Illinois Natural History Survey Division, Urbana, Illinois. Remit by postal money order to State Treasurer of Illinois. 406 pages, illustrated. Price $1.50 postpaid.

Within the covers of this small book are gathered together more than six hundred delightful characters—the common wild flowers of Illinois. Their simple presentation defines them as real characters, instantly recognizable as the most familiar wildlings met in rambles through the woods and fields. Not intended as a complete botanical record—rather as a guide—few technical terms are used and there is an introductory chapter explaining the less familiar of the botanical terms employed. Each flower is introduced, placed and simply and authentically described. And each flower is illustrated by a delicate line drawing—the work of Mrs. Charlotte Liebtag Grant, of the Illinois Department of Botany, and Dr. Carl O. Mohr, associate entomologist and artist for the Survey. There is appended a complete index for reference. Many a field trip is destined to be enriched by this small book, telling so charmingly of the wild flowers,—where and how they grow and may be found in Illinois.—L. M. C.

FIRST LESSONS IN NATURE STUDY, by Edith M. Patch. Published by the Macmillan Company, New York City. Price, $1.50. 283 pages, illustrated.

This book contains an elementary discussion of some of the more common birds, plants and animals. It contains questions and exercises on each chapter, making it an excellent text book for the teacher of nature study.—M. C. H.

PRINTING PAPERS, by William Bond Wheelwright. Published by the University of Chicago Press, Chicago. 130 pages, illustrated. Price, $2.00.

Here at last is a practical handbook to discuss the relation of paper to printing and the scientific methods of testing the suitability of papers to be used in printing. It explains the physical qualities of paper and how they are affected by atmospheric conditions; methods of judging paper and suggests antidotes for pressroom troubles. And it is more than a handbook, in that the author covers the invention and history of paper-making. It is written in simple, non-technical terms, and should prove valuable to anyone coming in contact with printing papers.—E. K.

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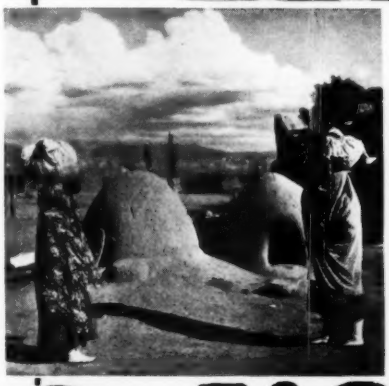

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# ASK THE FORESTER

**Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., will be Answered in this Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.**

QUESTION: What is a simple and efficient solution to use on increment-boring cores in order to bring out the rings more clearly so they can be counted?—A. T., Michigan.

ANSWER: Reports from foresters suggest that the surface of the increment core be thoroughly sanded and buffed. Some investigators then brush the core with shellac. In the case of pine cores, the smoothed surface may be washed with alcohol, or the excess resin may be removed with kerosene.

Dr. A. E. Douglass, in charge of climatological research of the Carnegie Institution of Washington, with headquarters at the University of Arizona, writes that when microscopic examination is needed, the core is glued within an enlarged saweut on the summit of a half-round wood strip, so that the grain is exposed at a forty-five degree angle. Thin sections can then be made with a razor blade, and the surface occasionally moistened with kerosene.

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QUESTION: Do you think that with all the demand for pulpwood in the South, and with a higher price for naval stores, we have a sufficient timber reserve of a size utilizable for naval stores operations to insure annual crops of gum turpentine in the neighborhood of 550,000 barrels for the next five years?—J. C. N., Georgia.

ANSWER: This is quoted from an inquiry to I. F. Eldredge in charge of the forest survey in the South, and the following is from his reply: "For several months we have been utilizing all of the available Forest Survey data in an analysis of the future outlook for gum naval stores from the timber supply standpoint.

"With the advent of eight new pulp mills in the south, six of which are or will be located in the naval stores belt, the competition for round turpentine timber certainly will become greater than it has been in the past and if such cutting is not wisely handled, it may even become acute in some sections.

"According to our data the timber supply situation appears particularly favorable in northeastern Florida and in southern Mississippi.

"The supply situation in southern South Carolina, west Florida, and southwest Alabama is sufficient to continue present production in those sections in the immediate future, and indeed allow for some expansion.

"Southeast Georgia is unquestionably in the tightest spot so far as the immediate future is concerned. If the demand for round timber continues unbroken for the next six years at the rate of the 1933-34 and 1934-35 seasons there is likely to be a shortage of workable timber.

"In the long run, this shortage in southeast Georgia bids fair to be overcome by the growth of the very large number of small size trees now coming on in this unit as a result of fire protection.

"To sum up, I believe that there is a sufficient supply of round naval stores timber in the belt as a whole, to maintain production of 550,000 units annually in the immediate future, notwithstanding any inroads likely to result from pulpwood cuttings."

QUESTION: How may the root spread of shade trees be controlled in order to prevent damage to the paving?—A. R., La.

ANSWER: This difficulty can best be met by adequate planning before the trees are planted, and by avoiding the use of surface rooted trees like Carolina poplar. In New Orleans, however, where the water table is high, these difficulties may be especially acute. Carl Bannwart, Superintendent of Newark, New Jersey's Shade Tree Bureau, suggests an adequate tree belt—or space between the curb and the walk. Under these conditions he reports that Newark has no record of damage to the roadway, "but even an oak tree may occasion a little adjustment to the flagstones on the sidewalk once in ten or fifteen years."

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QUESTION: In the August, 1935, issue of AMERICAN FORESTS the present stand of southern cypress is estimated as 40,400,000,000 board feet, but the Copeland report, page 179, gives only 4,140,000,000 board feet. Statistical Bulletin 21 (U.S. D.A.) published in 1927 gives 22,921,000,000 board feet.

Have you any other information on the stand of this species?—E. F., California.

ANSWER: While all data have not been computed, tentative figures indicate the present stand of cypress to approximate six billion board feet.

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QUESTION: Are directions available for making soap with wood ashes, after the manner of the early pioneers?—P. L., New York.

ANSWER: The following directions were prepared by Dr. F. P. Veitch, chief of the Naval Stores Research Division of the Department of Agriculture:

"Mix about three pecks of recently water-slaked lime, or hydrated lime with five bushels of hardwood ashes. Place in the bottom of a hogshead in which an inch hole has been bored a layer of straw or similar material three or four inches deep, and on this place about a bushel of the ashes, dampened by water. Pack this down rather firmly with a rammer, and fill the hogshead with the remaining ashes, a bushel at a time, pressing them down firmly. Pour five or six gallons—more, if necessary—of hot water on top of the ashes, and collect four gallons of the strong lye. Continue to leach the ashes until you have a total of eight or ten gallons, keeping each successive leaching separate.

"If the four gallons of lye first collected will about float a fresh laid egg—if it does not, the lye must be concentrated by boiling until it will—place this quantity of lye in a large iron kettle and add to it about thirty pounds of house grease, tallow, lard, and the like, and boil slowly over a small fire with frequent stirring, adding the dilute lye until the soap is fully cooked or formed, which can be determined by pouring a little on a saucer, when it should set into a soft mass and be entirely clear and transparent. Continue to boil until this condition is reached. The soap should then set for a day until cold.

"If it is desired to make hard soap, add to the hot soap mixture eight or ten pounds of salt, and boil until froth is light. Cool, separate lye, and dry.

## LAWS URGED TO INTEREST FARMERS IN GAME

Sportsmen must abandon the theory that "God and the game commissioners" alone can provide an abundance of upland game birds for everyone at the average rate of but two dollars per hunting license, according to the More Game Birds Foundation.

Warning that twenty-eight more quail, grouse, prairie chicken and wild turkey hunting seasons have recently been discontinued, the Foundation recommends that states offer liberalization of game laws on licensed areas to enable farmers to practice game management and profit from resultant game bird crops.

"Various state conservation departments are being condemned for failing to accomplish the impossible with the limited funds at their disposal. The truth is that the average license fee is entirely inadequate to provide all sportsmen with the legal bag limit for even one day in well-populated states," the Foundation declares in a new booklet "More Upland Game Birds."

The booklet, containing a survey of causes and suggested remedies for the game bird decline, quotes findings of outstanding authorities that the farmer must be enlisted to restore the birds. Sportsmen are urged to pay the farmer for shooting privileges after he has created a game crop by providing the necessary natural food, cover and protection.

"While these authorities all agree that the farmer is the key to upland game bird restoration, game laws of most states actually discourage the farmer from raising game or practicing game management," the booklet reveals.

"Without a shooting season or a season of sufficient length to permit a reasonable harvest, the farmer will not be able to realize an income adequate to compensate him, even if he was interested in game management. Many state game laws also prohibit the raising or management of game except 'in captivity.'

"If game were made abundant on well-managed areas, under present laws no more than a small daily bag limit may be taken—despite the number produced. Existing laws often prevent the practice of predator control — an important part of game management."

To overcome legal obstacles to game management, the Foundation recommends that a distinction be made between restrictions placed upon shooting of wild game birds and those produced by management.

The distinction would be made by the issuance of a license to farmers or sportsmen, authorizing them to establish game management areas. When game birds have been sufficiently increased on an area by individual or group initiative, the farmers or sportsmen would be permitted to hunt or sell shooting rights thereon under liberal regulations.

## TUNG-OIL TREE PLANTINGS INCREASE

Of 3,632,361 tung-oil trees growing in the United States in 1935, according to a recent report from the Bureau of the Census, 2,068,119 trees had been planted in Mississippi and 1,064,511 in Florida. Other states reporting tung-oil groves, the size of which averages about sixty-four acres, include Georgia, Louisiana, Alabama and Texas. This industry, whose product is imported from China for use in paints and varnishes, has grown from 351,000 trees in 1930 on 144 farms. The present acreage exceeds 40,000 acres planted on over 600 farms. Tung-oil importation into the United States amounted to 114,767,000 pounds in 1936, valued at $15,327,000.

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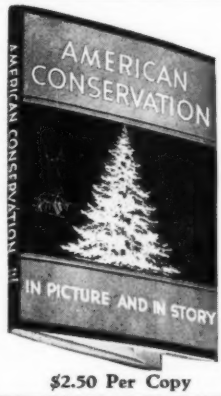


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See D. B. SMITH Ad on Page 151

# EASTERN NATIONAL FORESTS GROW

With $12,000,000 allotted by Executive Order for forest land acquisition during the fiscal year ending June 30, 1936, the National Forest Reservation Commission approved 2,891,040 acres for purchase at an average cost of $4.01 an acre. At the close of the fiscal year, according to the commission's annual report released in February, a total of 15,746,170 acres had been approved for purchase since the enactment of the Weeks Act on March 1, 1911. The average price per acre during this period was $3.70, and the total price $58,265,890, of which $45,900,000 were made available during the present administration.

The past year saw the creation of the Northern Redwood, the Southern Redwood, the Sequoia, and the Tahoe purchase units, in California; the Arrowrock, in Idaho; the Grand Lake, in Maine, and the Provo and Davis County units, in Utah.

Receipts from timber sales on the established eastern National Forests showed material increases, while nearly 19,000,000 persons used the areas for recreation purposes. With CCC camps to supplement regular appropriations, over 189,000 acres were planted to forest trees, effective fire control was maintained, and properly supervised crews of Emergency Conservation Work enrollees carried on timber stand improvement practices on some 300,000 acres of forest land.

# PUBLIC PARTICIPATION IN REORGANIZATION URGED

Open hearings by the Joint Congressional Committees on Government Reorganization were urged by Senator Harry Flood Byrd, of Virginia, in a statement released on March 11.

"It is inconceivable," stated Senator Byrd, "that a matter of this importance be considered entirely in secrecy." Thus far the executive sessions of the Joint Committee have been largely confined to discussions in which Chairman Louis Brownlow, Dr. Charles E. Merriam, and Luther Gulick attempted to clarify their report to the President on Administrative Management of the Government.

The so-called Byrd Committee, working in cooperation with the Brookings Institution of Washington, is preparing a comprehensive report on the administrative activities of the government under the existing organization. This report is not expected to be available before May 1. Meanwhile, the Joint Committee is reported to be considering the draft of a bill which presents in legal language the essentials of the Brownlow report. There are conflicting reports, based largely on conjecture, that the legislation when ultimately given out may consist of two parts. One bill would deal specifically with the direction and control of accounting and expenditures as developed by the Comptroller General's Office. Another bill would give the President "blanket" authority to reorganize the entire remaining government organization more or less within the frame-work set up in the Brownlow report. There is also possibility that a third bill would deal specifically with proposed changes in the Civil Service Commission to extend the merit system of government employment "upward, outward, and downward." Even when such legislation is passed, members of the Joint Committee anticipate the actual rearrangement of government functions may take from three to five years.

With no indication as to the fate of the several land administrative agencies of the government, in the event the name of the Department of the Interior is changed to Department of Conservation, public opinion in favor of retaining all of such bureaus as the Forest Service, the Biological Survey, and the Soil Conservation Service in the Department of Agriculture has crystallized in public statements by nearly one hundred national, regional, and state organizations.

Outstanding among the organizations which have joined with The American Forestry Association in the position that land use and the administration of naturally renewable resources of the soil should be retained in the Department of Agriculture are the American Association for the Advancement of Science, the American Farm Bureau Federation, the American Paper and Pulp Association, the Association of Land Grant Colleges and Universities, the Association of State Foresters, the California Chamber of Commerce, the Connecticut Forest and Park Association, the Conservation Association of Los Angeles, the Farmers Union, the Garden Club of America, the General Federation of Women's Clubs, the Georgia Forestry Association, the Izaak Walton League of America, the Lumber Manufacturers Association of New England, the National Grange, the National Cooperative Council, the Society of American Foresters, and the Union of Biological Societies.

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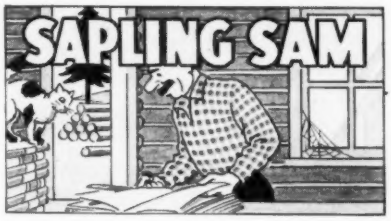



### *The Call of the Wild*

A farmer's son, just home from school for the holidays, seemed to take pride in using college slang, and at the breakfast table called out: "Mother, chase the cow down this way!"

Mother was equal to the occasion, and remarked to her husband: "Give the poor calf some milk. Don't you hear him bawling for it?"

### *Hope Springs Eternal —*

Local motorists who went through the drought-stricken Middle West last summer brought back some prize-winning stories of incidents along the route. One told of a conversation he had with an old settler at a filling station in one of the most arid districts.

"Looks as though we might have rain," remarked the tourist.

"Well, I hope so," replied the old native, "not so much for myself as for my boy here. I've seen it rain."

—*Michigan Motor News.*

### *The Tree Surgeon Sends His Girl a Birthday Present*

### *Jud's Plus Fours Never Sausage Links Before*

Up at Eugene a stout lady clambered aboard the street bus and placed a parcel of sausages beside her.

Jud Skinner, in plus-fours, got on at the next corner and sat down on an edge of the parcel.

"Excuse me," said the lady, "do you play golf?"

Somewhat flabbergasted, Jud admitted that he did.

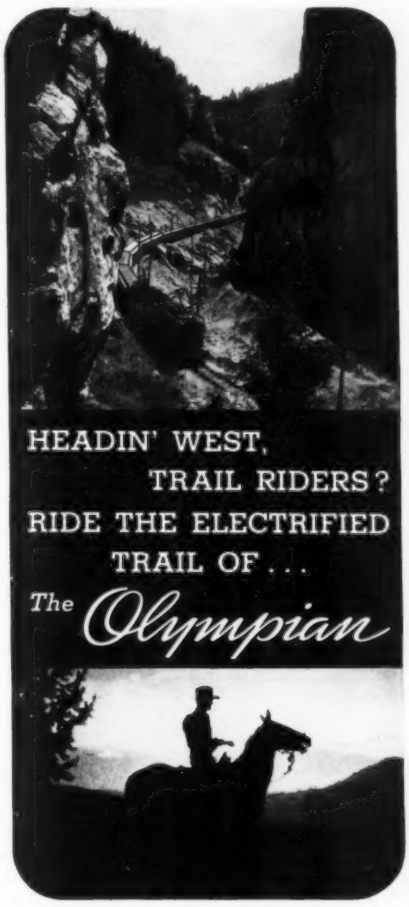
"Well, then, would you mind getting off my links?"—*Forest Log.*

### *Not a Kick in a Carload*

Teacher: "If a number of cattle is called a herd and a number of sheep a flock, what would a number of camels be called?"

Little Johnnie: "A carton."

—*Atlantic Sportsman.*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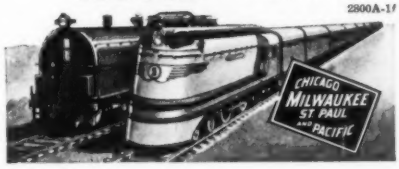

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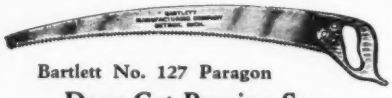

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# PINCHOT OPPOSES DEPARTMENT OF CONSERVATION

Gifford Pinchot, Chief Forester under Theodore Roosevelt and former Governor of Pennsylvania, in an address before the Allegheny Section of the Society of American Foresters, February 26, openly and vigorously opposed the proposal of Secretary Ickes to make the Interior Department the Department of Conservation of the Federal Government.

Declaring the plan to be a smoke-screen to split up and hamstring the forest work of the government, Mr. Pinchot defied Secretary Ickes to mention a single specific benefit to be derived from the proposal. He said that its result would be "to return the forest work of the government to the bad old days of dual control" and that it would place in the hands of one man too much power. "I am against it," he declared, "for the simple but sufficient reason that the public interest lies in the other way.

"In this world of ours," Mr. Pinchot said, "old evils are constantly turning up in new clothes. That exactly describes the proposal of Secretary Ickes to return control of the National Forests to the Interior Department (to be renamed the Conservation Department) from which they were taken some thirty years ago. * * * *

"Under the smoke-screen of establishing a Department of Conservation, Mr. Ickes proposes to split up and hamstring the forest work of the Government all over again. He proposes once more to take the publicly owned National Forests out of the Department of Agriculture where they have been admirably handled for a generation, and return them to the renamed Interior Department, whose treatment of them was a national scandal.

"The Interior Department has regularly mishandled every public natural resource of which it has had charge, with the possible exception of the National Parks, the forest in which is not treated as a crop. And I do not except grazing on the public lands, of which it has recently taken control.

"Under Secretary Ickes' plan, which proposes to return the forest work of the Government to the bad old days of dual control, much of the old jealousy, division, and inefficiency would inevitably return. It would leave forestry on private lands in the Department of Agriculture, and put forestry on public lands in the Department of Interior-Conservation.

"Thus forestry on one side of a fence would be handled by one Department, and on the other side of the same fence by another Department. Right now there are more than thirty million acres of private lands inside the boundaries of National Forests.

"In a speech delivered in New York last Tuesday, the Secretary of the Interior spoke of 'the administrative branch of the Government as it now exists, with its overlappings, its inconsistencies, its inefficiencies, and its sheer wastefulness in time and effort, as well as in money.' So far I agree with him completely.

"Then, after claiming that the Department of the Interior 'now administers the majority of our natural resources' (a statement which can only be described as ridiculous), he asserts that 'there should also be an orderly and logical arrangement of conservation activities'—obviously under the new Department of Conservation which he advocates. Then in another part of the same speech he shows us what is in his mind, what, according to him, an 'orderly and logical arrangement' should be. I quote:

"'We must realize the close relationship between the problem of the farmer on the banks of the Ohio or the Mississippi Rivers whose land is periodically flooded, with the result that his rich top soil is rapidly being carried down into the Gulf of Mexico; the problem of the stockman of the west whose diminished flocks are hard put to it year after year to support themselves on a wasted range that only a comparatively few years ago produced ample forage; the problem of the husbandman in the dust bowl whose top soil is spared the fate of being washed away by raging floods only to be blown away by the mighty winds that prevail in that area; the problem of the lumberman whose transcontinental pursuit of our vanishing timber resources has already brought him stark against the shore line of the Pacific Ocean; the problem of the owner of rich soil that can support him and his family in generous comfort if only he can get water from irrigation dams for it; the problem of the farmer whose land is not exposed either to abnormal flood or abnormal drouth conditions but who watches his water table vanishing under him; the problem of the outdoor man who finds the wilderness areas in which he loves to tramp and camp becoming more restricted year by year; and the problem of those who delight to go forth with rod or gun to track down the elusive game or to lure the wary trout with cunningly contrived bait.'

"Mr. Ickes, unquestionably without intending to do so, has given us a perfect picture of what he would like to do. The 'one common problem' which he sees in conservation includes the problem of the farmer;

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the problem of the stockman; the problem of the husbandman in the dust bowl; the problem of the lumberman; the problem of the owner of rich soil; the problem of the farmer who watches his water table vanish under him; the problem of the outdoor man; and the problem of those who delight to go forth with rod or gun.

"I quote again: 'The particular problems I have enumerated, and others like them, are only variations of one common problem.'

"Either Mr. Ickes doesn't mean that 'There should be an orderly and logical arrangement of conservation activities,' and that 'The particular problems that I have enumerated and others like them are only variations of one common problem'; or else we have here the picture of a gentleman so befuddled by the lust for power that he actually sees himself handling the problems of the farmer, the stockman, the dust bowl victim, the lumberman, the victim of erosion, the hunter, the fisherman, and the forester—all under his new and unnecessary Department of Conservation.

"Undoubtedly Mr. Ickes would deny any such purpose. Undoubtedly he did not intend that any such meaning should poke its head out of his speech. But it is equally beyond question that his own statement shows how impossible is the attempt to confine the conservation activities of the Government within a single department.

"Conservation is the use of the earth and all that therein is for the permanent good of the human race. Thirty years ago its purpose was defined as the greatest good of the greatest number for the longest time. It is the greatest question of all, for upon its solution depends the future of civilization and the very continuance of human life.

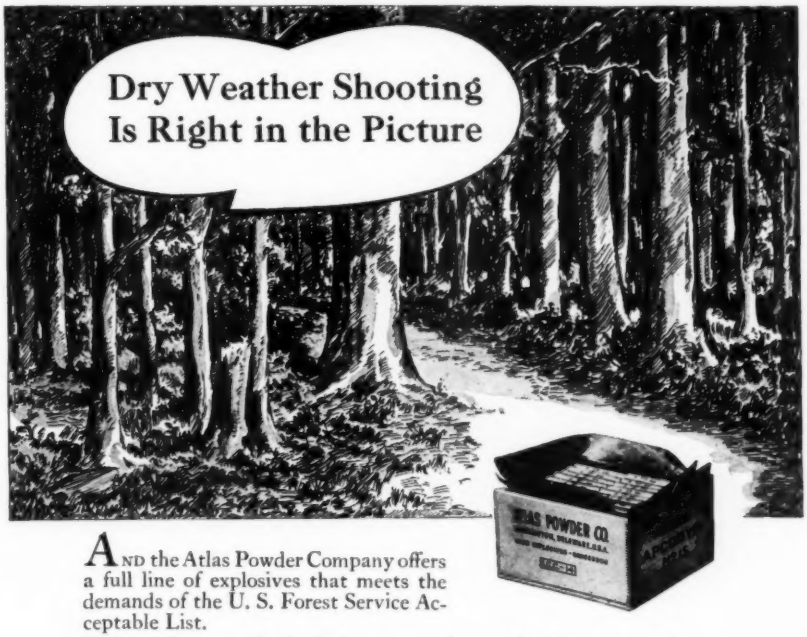
"Applied at first only to natural resources, it has come to include human resources as well. Conservation is as universal as the air we breathe, and in the long run just as necessary. No one department, though it were as far flung as Mr. Ickes' dream, can ever include the whole of conservation. Then why transfer the Forest Service?

"I defy Mr. Ickes or anybody else to mention a single specific benefit of any sort, kind, or description that could be obtained for the people of the United States, or for their work in forestry, by returning to the old split-up of that work between the Department of Agriculture and the Department of the Interior, that compares in any way with the benefits and advantages of leaving the Forest Service where it is now so well administered.

"Mr. Ickes' answer probably will be that the transfer is in the interest of 'an orderly and logical arrangement of conservation activities.' In that case, according to Mr. Ickes' own showing, an 'orderly and logical arrangement of conservation activities' would equally require the transfer of the conservation activities that have to do with farmers, stockmen, lumbermen, and 'others like them.'

"I object to Mr. Ickes' proposal to bring back the evils of thirty years ago in a new suit of clothes .... I am against it for the simple but sufficient reason that the public interest lies the other way.

"This proposal is not sugar-coated for me by Mr. Ickes' unconscious revelation that he would like to take possession of a large section of the rest of the Government at the same time. Too much power is bad for some people, and this case is no exception."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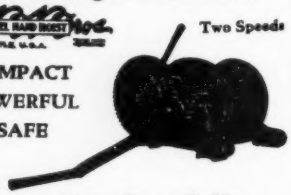

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# EDUCATING THE FISH

BY CHARLES J. SULLIVAN

While stationed in the Philippines in 1932, I took advantage of an opportunity to visit the southern islands of that group. During the cruise I went ashore on a small island in the Sulu Sea, about midway between Palawan and Mindanao, perhaps one hundred and fifty miles northeast of Borneo.

There I witnessed what is doubtless the strangest method of fishing extant in the world today; I say "extant" because this particular method is prehistoric. Since observing it on this nameless island I have heard of traces of it on other islands in the Philippines and in the Carolines.

In Luzon I had seen natives spearing *lapu-lapu*, and often I had watched Manila boys catching blue fish with their bare hands. Many times I had observed Tagalog women snaring good-sized fish for supper in their rice paddies not ten yards from their doorsteps,—or rather from the stilts which hold up the houses. But there on that islet without even a charted name, I saw a tribe of Visayans catch a year's supply of big mackerel-like fish with a stone bait by the strange means of first educating the fish—the particular fish which they wanted.

In the sea from which they draw these fish by the thousands there are many other good fish, but none which lends itself to drying and storage like the one they call *twee-twee*. At least that is the way I would spell the sound they utter when referring to it. The natives educate this particular fish while it is still in its natural place, more than fifty feet below the surface of the Sulu Sea.

What I actually saw was the harvest, the culmination of the educational process, the commencement exercises, as it were. In order to make the method clear, therefore, I shall have to describe it from the beginning. This was explained to me by the natives themselves and by members of the Geodetic Survey cruiser on which I was a passenger. I saw and examined all of the gear mentioned and used.

First the natives secure a stone or a piece of coral about four inches in diameter. This they shape and smooth until it is roughly the shape of a half hemisphere. After this has been carefully shaped, two holes are bored diagonally downward through the stone. Next a half of a coconut shell is inverted over this stone, between the holes. A small hole is cut in the top of the shell at its apex, about the size of a match head. Then a strong cord, about seventy feet in length, is woven from the fibre of coconut husks and is waxed with palm gum. This is inserted through the holes in the stone. Everything is now ready except for the true bait which is not prepared until the day of its use.

To prepare this bait, the women of the tribe hold a gabfest. That is, it looks like a gabfest, but there is no talking. At this party the women sit and chew up the meat of hundreds of coconuts. They swallow the juice, but eject the ground meat into the coconut shell which is atop of the stone. The shells are completely filled in this manner.

About three months before the new supply of dried fish is needed the men of the tribe start the process of education. Taking these queer baits, which are attached to seventy-foot lines, they paddle their *praus* out to deep water, a mile or more beyond the cove. They lower the stones over the side until they are felt to touch bottom. Then for about three hours these strange fishermen simply sit there and jerk their lines up and down with a slight movement of the wrist. This makes a gentle clacking sound on the bottom of the sea. The *twee-twee* is down there in enormous schools.

At first the fish run away, but they find dozens of the strange clacking things. Like human fish they become interested and want to see what makes the strange thing clack. Shyly they go up close, and eye it from all angles. Nothing harmful about it, they decide. Suddenly they become acutely aware that the water is filled with a sweet food; they gulp this minced coconut meat and like it. It is easy to secure; there is no racing and fighting for it. There is plenty for all. Instinctively they connect the food with the clacking things, but that is as far as they go.

After about three hours the fishermen's shells are empty and they haul up their lines and return ashore to sleep and eat. The next day, at exactly the same time, they return to sea and the lesson is repeated. In short, it is repeated every day for exactly fifty days. The only variance is that after the tenth day the stones are brought nearer and nearer the surface—the fish, of course, following it. This is a deep water fish that, as a rule, never is caught nearer than fifty feet below the surface.

At the end of sixty days the stone is lowered at first to the forty foot level, is clacked a few times, then slowly brought upward until the fish can be seen just below the surface. On the seventieth day the stone and the fish are brought clear to the top. Then come the commencement exercies. Fish are so thick that they are actually jammed on the surface. On this day the fishermen have all brought two helpers with nets—shovels would do just as well—and the big fish are literally shoveled into the *praus*. In less than half a day the tribe of several hundred people have laid in a year's supply of fish, and when it is considered that fish and rice constitute fully ninety-five per cent of their food, it must be admitted that their system is not bad just because it is ancient.

## PHOTOGRAPHIC CONTEST CANCELED

The Fourth Annual Photographic Competition sponsored by The American Forestry Association, scheduled to close on October 31, 1937, has been canceled. This action was deemed necessary to enable the Association to concentrate more fully on educational activities of a more urgent and vital nature. All contestants as of March 15 have withdrawn from competition. No more entries will be accepted.

## LOGGING

(*Continued from page* 172)

approximately eighty per cent of the volume to removing only forty per cent. This, of course, left the forest in much better condition for the second cut at an earlier date, and it is understood that the operator has made more profit by this method of operation.

There are hundreds of thousands of acres in the South that are being operated very satisfactorily from a forestry point of view, and this has been made possible because of the development of tractors and trucks and the construction of good highways.

As stated before, the development of tractor logging has also resulted in the development of truck hauling for longer distances. This combination of equipment has possibilities which will be far-reaching in results from the standpoint of better forestry practices. Trucks eliminate the necessity for a large portion of railroad construction so that, in many cases, railroads can be abandoned. Tractors can be used for skidding logs to the truck roads, and this reduces the amount of road necessary.

Some comparison of tractor hauling as compared to team hauling is shown by the following figures. So far as is known, the largest load of logs ever hauled with horses was 50,580 board feet, log scale. This load, consisting of two sleighs, was hauled a distance of about fifteen miles with six horses on March 4, 1909, at Pine Island, Minnesota. The largest train of sleighs ever hauled by tractor consisted of thirty-four sleigh-loads of spruce logs, at the Sipenok River Camp of the Pas Lumber Company, Manitoba, Canada, in 1936. This trainload of sleighs contained 210,600 board feet log scale. The haul was approximately nine miles over an iced road. The timber was green spruce, and ran around eighteen logs to the thousand feet. This load of logs probably weighed more than 2,000,000 pounds.

I should not be surprised to see 400,000 feet of logs hauled at one load over an iced road in the near future. Furthermore, I should not be surprised to see as much as 100,000 feet of logs hauled on trailers drawn by ninety-five and 125 horsepower tractors.

The net result of logging the new way—tractor-truck logging—has been low investments in equipment compared to railroad and power logging, low operating costs, greater immediate profits and, what is more, much greater eventual profits owing to the possibilities of selective cutting and good forestry practice. Under these conditions, there is absolutely no excuse for a continuation of forest devastation where such logging methods have proved to be practical. It is reasonable to expect that any fair-minded operator will be entirely willing to practice better forestry when it can be shown definitely that it is both to his interest and to that of the general public to do so.

### IMPORTANT

The 64th Annual Meeting of The American Forestry Association Will Be Held in Cincinnati, Ohio — May 31 to June 2. An Outstanding Feature Will Be An Inspection Trip by Boat — One Hundred Miles Along the Ohio River. Full Details Will Appear in the May Issue.

PLAN NOW TO ATTEND

### A TREE

Were I to choose I'd like to be
A green old tree.
I'd like to reach up very high
To touch the soft blue sky,
And yet to keep my humble feet
In a grey city street.
In blossom time I'd be, by grace,
A wayside holy place,
And shake my stilly fragrance down
On all the passing town;
If one green pathway to the sky
Grew tiresome, couldn't I
Send out a slim young branch to be
A brand-new path for me?
All day I'd spin me golden dreams
From little broke sunbeams,
At dusk I'd watch the Lady Moon
Put on her silver shoon;
And ah! so far from yielding breath
To a grey, sad-eyed Death,
How glorious, when I was old,
To burn away in gold!
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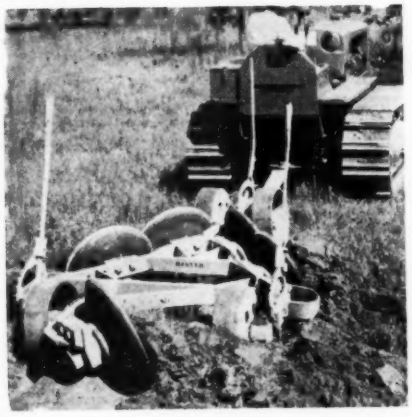

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# HEALTH AMONG WILD ANIMALS

(*Continued from page* 175)

to accept sick and dead birds, and the disclosure of the illegal trapping results. This is but one of many ways a scientific knowledge of disease and parasitism may be of help to the enforcement officer.

Going back to the story of Sandy, the little duckling who became famous. In the prosaic published account of the investigations, he was but one of the individuals composing a numbered lot. When I went to the biological station of the University of Michigan the first summer to work on what turned out to be a serious malaria-like disease of ducks, Sandy went along for a vacation. That is, he was one of four pet ducklings belonging to my little daughter. The others were Salt, Pepper, and Smokey, and they were all to be allowed the run of the lot in return for some daily caretaking services of their master at the duckling service station.

How it came about that Sandy allowed himself to be bitten by blackflies that had previously fed on diseased wild ducks, I do not know. At any rate, there came a day when Sandy refused food and became so wobbly that he could scarcely stand. He tumbled around in circles. It was then that a drop of his blood, properly prepared and studied by aid of the oil immersion lens of a compound microscope, showed the deadly spindle-shaped parasites. But Sandy did not die. He recovered and continued to serve science, while living the life of a normal duck.

In due course of time, hundreds of ducks and ducklings were used in these investigations and many experiments carried out to determine the etiology, pathology, and some of the other kinds of "ologies" associated with the disease. The published report stated that the disease was discontinuous and spotty over a wide range and that it takes heavy toll of both wild and domestic ducks. In this investigation, as in others, it was possible to live-trap the majority of the ducks and liberate them after they had served science. The major findings were published in 1934 but even yet letters come from countries as distant as India, Africa, and Australia, asking for further information.

As was the case in quail study already mentioned, this study brought to light facts that are extremely important to those responsible for administering our waterfowl resources. The disease is initiated year after year by recovered carrier ducks that still retain the infection even though they are to all outward appearances normal. Domestic ducks should not be reared adjacent to wild duck breeding grounds unless they have been tested and found to be free from disease. Conversely, domestic ducks may become diseased if they are reared in areas where the wild ones are diseased. If possible, sanctuaries for waterfowl breeding grounds should be established in areas free from black flies.

An account amounting to little more than a list of parasites and diseases of the ruffed grouse would fill several pages. It is well known that this prized game bird of the northern mixed hardwoods and coniferous forests is subject to wide fluctuations in numbers. The subject is highly controversial. Explanations for the grouse cycle vary from sun spots, five hundred thousand miles in diameter, to protozoan pathogens whose size is measured in microns. Some excellent work on specific diseases and parasites has been done under laboratory conditions. I have at various times been a member of field parties studying grouse, but my compiled reports have been pitifully inadequate to explain such things as cycles.

I believe the closest our party ever got to the solution was when we sat down to rest, each on a seat furnished by the hub of a Paul Bunyan logging wheel which we found in the north woods. Our proposed solution was that if we could sit for a few years on drumming logs and think like grouse, we might be able to solve the problem. From preliminary work that has been done by other investigators, I am inclined to believe that a detailed field study of a species of *Leucocytozoon* that has been found in grouse, would yield important results.

These illustrations have dealt with birds. How about diseases among the wild mammals? The newspaper reading public has a general knowledge of tularemia in rabbits, and is aware of the precautions that need be taken to avoid this rabbit fever infection in man. People have also heard that it is possible to get trichinosis from eating jerked bear meat. Not so well known is the fact that, occasionally, a serious livestock disease may run rampant in wild mammals. About a decade ago, foot and mouth disease, introduced at a western seaport, spread rapidly among the wild deer largely in Stanislaus County, California. Before the disease was stamped out, state and federal agencies were obliged to slaughter over 22,000 deer.

I do not know what the reaction of my readers is to the question of disease in deer, but in my own case, even though I have long known better, I have a tendency to cling to my illusion supreme. Surely so beautiful a creature as the deer, its gray body blending with the dark softness of the spruce forest in winter, and its red coat disappearing in the lacy pattern formed by the paper birch in summer—surely such a graceful animal must be free from disease! In the land of make-believe, I continue to think so, but in the world of science, wherein my vocation lies, I know it is not so. I have known this ever since I found the sick, thin doe out in the Valley of the Moon. And this was many moons ago.

What diseases do deer have? By far the majority of deer that I have examined at hunters' camps have been normal, healthy animals. But in other deer I have found lungworms, nose bots, liver flukes, pneumonia, anemia of various types and malnutrition, as well as the lesions attributable only to old age and senility. In many cases, death appeared due directly to disease.

One of the most serious questions that concerns those entrusted with the management of our deer resources today, is the fact that locally over widespread but discontinuous areas in many states the deer populations are out of balance. The crux of the situation is the unequal distribution of numbers of animals with respect to the summer and winter food supply. Local outbreaks of parasitism and disease occur. In the long run, it is a case of the "Four Horsemen", the last three of which are famine, pestilence, and death. My own observations dealing with causes of losses are that disease and parasitism are much more likely to prove fatal when they accompany or follow malnutrition.

The pathologist is treading on dangerous ground when he makes the bald statement that if predators were left undisturbed, we would not have outbreaks of parasitism or disease. It may be true that weaklings are more likely to be taken by predators but so far as I know, no one has ever given it a sound experimental trial, with all factors controlled and measured, and certainly there are many illustrations of where disease and parasitism strike down the strong as well as the weak. It seems more logical to say that the hazards of disease along with those of predators, have accompanied deer down through the ages.

A magnificent forest does not come to full development on the bare rock devoid of soil and humus. The duff, the humus, the damp, rotting, moss-covered logs and all of the agencies of decay are the contributions of the dead to the living. Possibly it is that way with the animals; those that survive are the hardy ones that successfully resist the forces of destruction. But this does not mean that all of these forces are beyond our control. By acquiring and applying knowledge, we can so manipulate some of these forces that our problems will cease to be far away, utterly hopeless, and unbelievably mysterious.

## DUTCH ELM DISEASE IN EUROPE

(*Continued from page* 161)

landscape around Bishop's Stortford, north of London, has become distinctly more treeless since the first infected trees were noted in 1929. At Buxted Deer Park, south of London, there is a striking infection. Four rows of trees more than sixty feet high were found infected in 1928. Twenty per cent showed signs of the disease. In 1936 we found that thirty-six per cent were apparently free from the disease, forty-five per cent were dead and cut down, and nineteen per cent were evidently diseased.

On one estate of 1,800 acres near Worcester, northwest of London, 600 very large elms have been killed and cut during the last five years. Many more need cutting. A row along a road south of Worcester was dead or cut down for over a mile. Some of the logs had been hauled away; others were still lying on the ground. Yet in 1928 only one infected tree was seen in the region.

What is the future of the elm in England? It can best be told in the words of the English themselves. The "Report on the Dutch Elm Disease in England," of the Forestry Commission for 1936, says:

"It is now more than ever impossible to recommend the planting of elms anywhere in England or Wales." And again: "The progress of the disease is still so irregular that it is impossible to prophesy the future of the elm in England. At the present rate, it will be very many years before the elm becomes uncommon but it seems likely that unless the course of the disease radically alters or unless many of the elms still unaffected prove to be resistant eventually the elm will lose its position as one of the most important components of the English landscape."

Do we wish to be forced to make such a statement about the elm in America?

## PAUL BUNYAN READS THE RECORD

(*Continued from page* 158)

and Johnny Inkslinger closed the ledgers. "Wait a minute," Paul said, "I'd like to do a little figuring about those boys and the trucks and cars. First, tell me how many different boys Boss Fechner's had in his crews since he started, right up to now. You know he's been teaching those boys to do things they didn't know how to do before. As a result, they keep going out and getting better jobs and not coming back. Then he has to get a bunch of new boys."

"Yes, I know," Johnny replied. "I tallied that up just a day or two ago. The least he's had at any time is about 300,000 and the most about 500,000. Altogether he's had about 1,600,000 different boys."

Paul picked up the oak keg he used for a cup, took a swallow of the "night cap" Johnny had fixed for him, and set it down again. "Well, if all those boys and trucks were to parade past the door of our bunkshanty, how long would it take them? Say the boys marched in lines of four, three paces apart, and went by at the rate of twenty lines to the minute, and the trucks followed, single file, twenty feet apart, at, say, four to the minute?"

Johnny figured steadily for a while, while Paul puffed his pipe and sipped his drink. "Well, Boss," he said at length, "It would take 333 hours just to get the boys past. The automobiles and trucks would require about 188 hours to go by. The boys would stretch out along the trail a little over 680 miles and the trucks about 170 miles. That would make a parade about 850 miles long. That's enough miles to circle around Puget Sound, and overlap a little.

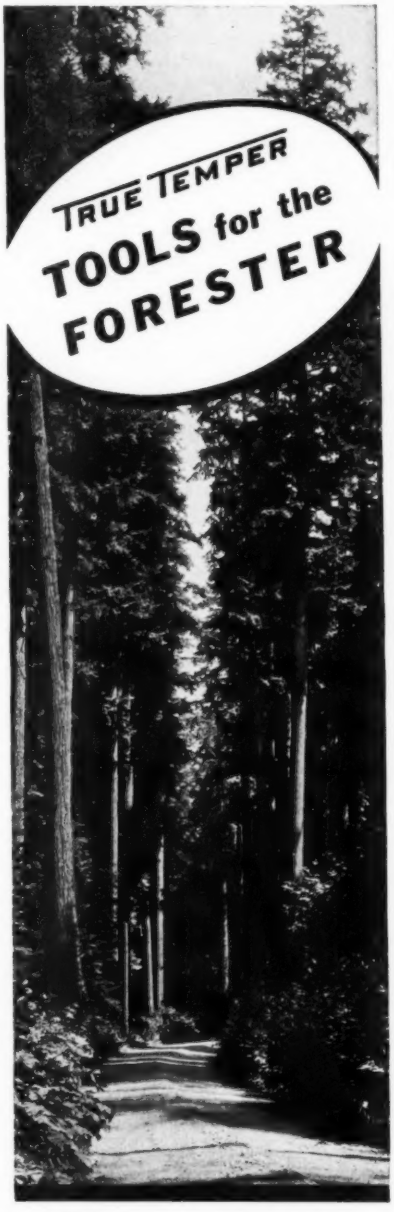
"How long would it take, in days, for the whole parade, leaving out Sundays?"

Johnny Inkslinger did a little more calculating. "Well, I figure it'll take the boys fourteen days and nights, and the trucks and autos eight days. That's twenty-two days. If you leave off Sundays, and let them stop for a rest on Lincoln's and Washington's birthday, it'll just take the whole month of February."

"The whole month of February," Paul repeated slowly. "That's too danged long to watch a parade."

Seeing that Paul was in good humor, Johnny said, "Boss, before you turn in, there's something I'd like to get off my chest. Ever since this new Boss started things going, and you didn't get the contract, you've been watching everything he's done. At first you were peeved, but lately you've been taking as much interest in what he's doing as if you were doing it yourself —and praising him sky-high. In the old days you'd have started something bigger'n made him a piker. What's changed you?"

"Well, that's a fair question, Johnny," said Paul. "I was peeved at the start, and did think some of doing something to show him up. The trouble was the darned cuss went and did just what I'd planned to do if I'd got the contract. That made me mad, too. Then I got to thinking things over. That name he's got seemed familiar, but I couldn't remember just where I'd heard it before. One day it came to me. Then things were all right and I felt better. I looked it up in the family Bible, just to be certain, and sure enough, I was right. My mother's old Aunt Lou was named Fechner, so it's all in the family, anyhow."

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# FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

A new version of the bill to create the Mount Olympus National Park in the Olympic Peninsula was introduced on February 15 as H. R. 4724, by Representative Monrad C. Wallgren. Approximately 138,000 acres containing nearly 6,000,000,000 board feet of commercial timber on the west side of the peninsula are omitted in the new bill, while about 50,000 acres, including some 500,000,000 board feet of timber are added along the west side of the present National Monument. The additions include the snow covered Mount Constance, visable from Seattle, the Greywolf Range, and the Royal Basin. The proposed National Park as described in the new bill would contain approximately 8,000,000,000 board feet of timber, as compared with some 13,500,000,000 board feet within the boundaries described in H. R. 7087 of the 74th Congress.

In addition to the change in the boundaries, section 4 of the original bill proposing to permanently reserve the Mount Olympus National Park as a wilderness is omitted. This declared that "no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of unique flora and fauna and the essential primitive natural conditions prevailing in the area," and was first incorporated in the Act of May 30, 1934, providing for the establishment of the Everglades National Park in Florida.

The change in boundaries, which is in the nature of a compromise, brings forward the importance of resolutions passed by the Directors of The American Forestry Association to the effect that Congressional action "be deferred until an impartial and adequate study can be made of the region from the standpoint of its highest public service to the nation" in order that the two bureaus and the two secretaries involved may agree upon a common resolution. Similarly, the elimination of Section 4 brings up the question as to whether the establishment of the National Park will assure "permanent preservation of a substantial body of the finest primitive forest within the region of the present ount Olympus National Monument."

A new clause would protect Jefferson County from loss of its existing share of National Forest revenue. According to testimony submitted by Representative Wallgren during the hearings of last year, Jefferson and Clallem Counties in receiving twenty-five per cent of the gross receipts from timber sales on the Olympic National Forest collected $24,500 in 1933, $44,000 in 1934, and $33,700 in 1935. The boundaries of the park as proposed in the Wallgren bill would decrease the area of National Forest in Jefferson County by about forty-five per cent, but the clause if maintained would give that county the same proportion of the gross returns as it has been receiving.

Representative Edward T. Taylor of Colorado has been appointed Chairman of the House Committee on Appropriations to succeed Representative James P. Buchanan of Texas, who died on February 22. Representative Taylor, who had been for several years chairman of the subcommittee on appropriations for the Department of the Interior, is succeeded by Representative James G. Scrugham of Nevada, while Representative Harry P. Beam of Illinois has been appointed to fill the vacancy in the Joint Committee on Government Reorganization caused by the death of Mr. Buchanan.

Executive hearings on appropriations for the Department of Agriculture began on March 10, and for Interior on March 15.

During the White House press conference of March 5, the President is reported to have said that if Congress passes the reorganization program, the permanent form of the present National Resources Committee, recommended as a part of the executive organization will probably consider creating a "dust bowl authority" for Oklahoma, Texas, Kansas, Colorado, and New Mexico. The function of this "authority" could be to correct soil erosion through cooperation with the several states, and so control dust storms.

While differing in detail, this is similar to the plan outlined in S. 1440 introduced jointly by Senators Barkley of Kentucky and Bulkley of Ohio, authorizing the creation of seven "valley authorities" covering the entire United States for the control of flood waters, the improvement of navigability, reforestation, and conservation of natural resources.

No hearings have been held on any of the bills proposing to make the CCC permanent, but on March 2, the President is reported to have told a news conference that he wishes to boost the enrollment from 300,000 to 400,000. He added that some camps may have to be closed, but the policy will be to shut down only those establishments where the works projects originally planned have been executed.

Although apparently directed toward the control of incipient or emergency outbreaks of insects, such as grasshoppers and Morman crickets, Senator Gillette's S. J. Res. 75 would provide a continuing appropriation of $5,000,000 for other insects such as pine bark beetles and for the control of such plant diseases as white pine blister rust and possibly Dutch elm disease. In Senate Report 110, the Committee on Agriculture and Forestry unanimously recommends passage at the earliest possible date, explaining that "emergencies which arise on account of the activities of insect pests usually come with practically no warning; and for any control measure to be effective, action must be taken immediately."

The Department of the Interior, through the National Park Service, and the Department of Agriculture, through the Forest Service and Biological Survey are reported to be working on a national inventory of recreational areas in the United States to serve as a basis for long term planning to meet public recreational needs. The study was inaugurated by the Department of the Interior under authority of the Robinson Act of June 23, 1936, and by action of the National Resources Committee was broadened to include other federal land administrative agencies.

# CONSERVATION CALENDAR

## Important bills in Congress with action from February 21 to March 15

### APPROPRIATIONS

H. J. Res. 261—JONES—Providing that $2,000,000 of the unobligated balance of appropriations for relief purposes, contained in the 1935 and 1936 Emergency Relief Appropriation Acts be made available for control of wind erosion in the Great Plains. March 4, 1937. Referred to the Committee on Appropriations.

### EDUCATION

H. R. 5169—BARRY—To provide for cooperation with the States in promoting conservation education in the public elementary schools, high schools, colleges, and universities, etc. March 1, 1937. Referred to the Committee on Education.

### LANDS

S. 1785—ELLENDER—To provide for cooperation between agencies of the government in the purchase and sale of agricultural lands and for other purposes. March 8, 1937. Referred to the Committee on Agriculture and Forestry.

### NATIONAL PARKS

S. 1791—MCADOO (H. R. 5394—MCGROARTY)—To provide for the acquisition of certain lands for and the addition thereof to the Yosemite National Park in California. March 8, 1937. Referred to the Committee on Public Lands and Surveys.

### SOIL CONSERVATION

H. R. 3687—JONES—To extend the period during which the purposes specified in section 7 (2) of the Soil Conservation and Domestic Allotment Act may be carried out by payments by the Secretary of Agriculture to producers. January 26, 1937. Reported without amendment by the Committee on Agriculture (Report No. 379) March 10, 1937.

### TREE DISEASES—INSECTS

S. J. Res. 75—GILLETTE—(H. J. Res. 151—CLARK, Idaho; S. J. Res. 31, WHEELER)—Making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases. Passed Senate February 24, 1937. Reported with amendment by House Committee on Agriculture (Report No. 356), March 4, 1937.

### WATER AND STREAM CONTROL

S. 206—BORAH (H. R. 201, WHITE, Idaho)—For preliminary examination and flood control survey of the Snake River and tributaries in the States of Idaho, Washington, and Oregon. Passed Senate January 27, 1937. Passed House March 1, 1937. Signed by the President March 4, 1937.

S. 1173—COPELAND (S. 1289—DAVIS)—To amend the Flood Control Act of June 22, 1936. Passed Senate February 24, 1937. Referred to House Committee on Flood Control February 25, 1937.

H. R. 61—TERRY—Authorizing a preliminary examination of the Fourche LaFave River in Arkansas, with a view to the control of its floods. January 5, 1937. Passed House March 1, 1937. Referred to Senate Committee on Commerce March 2, 1937.

H. R. 1550—DIMOND—Authorizing a preliminary examination of the Skagway River in Alaska. January 5, 1937. Passed House February 15, 1937. Referred to Senate February 16, 1937.

H. R. 1629—DIRKSEN—To provide for a preliminary examination of the Mackinaw River in Illinois, with a view to flood control and to determine the cost of such improvement. January 5, 1937. Passed House February 15, 1937. Referred to the Senate Committee on Commerce February 17, 1937.

H. R. 2682—CLUETT—To authorize a preliminary examination of the Battenkill in New York with a view to the control of its floods. January 12, 1937. Passed House March 1, 1937. Referred to Senate Committee on Commerce March 2, 1937.

H. R. 2683—CLUETT—To authorize a preliminary examination of the Mettawee River in New York with a view to the control of its floods. January 12, 1937. Passed House March 1, 1937. Referred to the Senate Committee on Commerce March 2, 1937.

H. R. 3305—STUBBS—To authorize a preliminary examination and survey of the Ventura River in California, with a view to the control of its floods. January 19, 1937. Passed House March 1, 1937. Referred to the Senate Committee on Commerce March 2, 1937.

H. R. 3306—STUBBS—To authorize a preliminary examination and survey of Santa Maria River, with a view to the control of its floods. January 19, 1937. Passed House March 1, 1937. Referred to Senate Committee on Commerce March 2, 1937.

H. R. 3419—PFEIFER (S. 13—LONERGAN)—To prevent pollution of the navigable waters of the United States, etc. January 21, 1937. Reported with amendment by the Committee on Rivers and Harbors (Report No. 187) and referred to the Committee of the Whole House, February 4, 1937.

H. R. 3619—MANSFIELD—To authorize an examination and survey of the Lavaca River in Texas, with a view to control of its floods. January 25, 1937. Passed House March 1, 1937. Referred to the Senate Committee on Commerce March 2, 1937.

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# WHO'S WHO

## Among the Authors in this Issue

R. KENT BEATTIE (*The Dutch Elm Disease In Europe*) is a principal pathologist in the Division of Forest Pathology of the Bureau of Plant Industry. He has been connected with the United States Department of Agriculture for the last twenty-five years. In 1927 to 1930 he studied Oriental chestnuts resistant to the chestnut blight in Japan and China, and introduced into the United States many strains now being tested. Now directing the work on tree disease emergencies in Forest Pathology, Mr. Beattie spent the summer of 1936 in western Europe studying the Dutch elm disease.

R. Kent Beattie

GRIF ALEXANDER (*We Go A-Fishing*) is an inactive but very much alive member of the Fourth Estate. He started his newspaper work 'way back, in Pittsburgh, and has been reporter, special writer, columnist and editorial writer. Having fallen in love with Southern Maryland years ago—he lives and writes from his estate, Green Holly,—a lovely spot on the Patuxent River in old St. Mary's County. He is an enthusiastic gardener and woodsman, and his seasonal prose-poems are a recurring delight.

Grif Alexander

EARL C. O'ROKE (*Health Among Wild Animals*) is a widely known zoologist and a member of the faculty of the School of Forestry and Conservation at the University of Michigan at Ann Arbor. A native of Kansas and graduate of the Universities of Kansas and California, he specialized in biological work and has devoted much time to the study of wildlife in its native habitat, producing many scientific papers dealing with the diseases of upland game birds, waterfowl and deer—so he speaks with knowledge of these creatures of the woods, which are so generally and erroneously thought to be "sound, fleet and healthy."

Earl C. O'Roke

FRED J. MURRAY (*Paul Bunyan Reads the Record of the CCC*) was born and brought up in Wisconsin during the time of its great logging activities. Much of his youth, he says, was spent finding new camping and swimming places as logging operations devastated one after another of his favorite haunts. With his family he moved west to Missoula, Montana, where he attended the University of Montana and was employed at newswriting. During summers he drifted off to be associated with George Drumheller, of Walla Walla, staging rodeos. After colorful years in the Army and later in the West colonizing irrigation districts, followed by editorial work in New York, Mr. Murray joined the United States Forest Service in connection with the Civilian Conservation Corps activities—hence his authority as chronicler of Paul Bunyan's amazed reaction to the Corps, as he watched its work from the Milky Way.

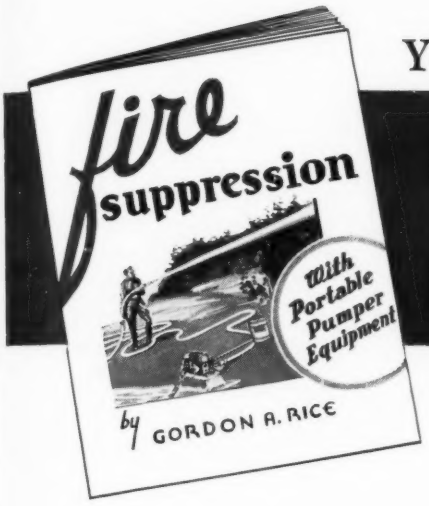
Fred J. Murray

JAMES W. GIRARD (*Logging the New Way*) writes of life in the lumber woods and the transition of logging from the days of hand-hewn, horse-drawn methods to the highly mechanized tractor-truck lumbering of the present day. And "Jim" Girard knows the story, too, for he was born on a farm in Tennessee and reared as a regular backwoods farm boy. He started actual woods work when he was only sixteen. Later he ran a small saw-mill for himself. Different woods jobs took him West about 1904—to Idaho and Montana in the National Forest timber sale areas. His practical training and experience in sawmilling, scaling and appraising led to his appointment as logging engineer in the Inland Empire Region, where he made intensive studies of the newest methods, including tractor logging. He is now in the Branch of Forest Research doing a special job as Assistant Director of the nation-wide Forest Survey it is conducting.

James W. Girard

ETHEL ROMIG FULLER (*Poem — In An April Wood*) paints spring's carnival in her lovely lines. She is verse editor of the *Oregonian*, and lives in Portland, and ANNE SUTHERLAND (*A Tree*) is a poet who writes from Canada.

THE COVER—A logging arch in action near Comax Lake, in British Columbia. It is a W. J. Moore photograph.

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